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PROCEEDINGS

OF THE

DORSET NATURAL HISTORY AND ANTIQUARIAN FIELD CLUB.

EDITED BY

NELSON M. RICHARDSON, B.A., F.E.S.

Hon. Secretary.

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Stone, Walter Boswell, Esq.	Shute Haze, Wallditch, Bridport
Stroud, Rev. J.	South Perrott, Crewkerne
Stuart, Hon. Morton G. (<i>Vice- President</i>)	2, Belford Park, Edinburgh
Stuart-Gray, Colonel Hon. Jas.	Kinfauns, Perthshire
Styving, F., Esq.	The Yarrells, Poole
Suttill, J. T., Esq.	Bridport
Sykes, R. Ernest, Esq.	9, Belvedere, Weymouth
Symes, G. P., Esq.	11, Victoria Terrace, Weymouth
Symonds, Henry, Esq.	Oakdale, Farquhar Road, Edgbaston
Sydenham, David, Esq.	Bournemouth
Tennant, Major-General	8, Belvedere, Weymouth
Thomas, Rev. S. Vosper	Moxley, Wednesbury, Staffordshire
Thompson, J. Roberts, Esq. M.D.	Monkchester, Bournemouth
Thompson, Rev. G.	Highbury, Bodorgan Road, Bournemouth
Thurlow, Rev. Alfred R.	Hilton Vicarage, Blandford
Tisdal, Colonel	Keynston Lodge, Blandford
Trew, Rev. C. O.	Alvediston Vicarage, Salisbury
Turner, W., Esq.	High Street, Poole
Tweed, Rev. Canon H. E.	St. John's Villa, Weymouth
Udal, J. S., The Hon.	c/o Lovell, Son, and Pitfield, 3, Gray's Inn Square, London
Usherwood, Rev. Canon T. E.	Rossmore, Parkstone
Walker, Rev. S. A.	Spetisbury Rectory, Blandford
Ward, Rev. J. H.	Silventon Rectory, near Cullompton, Devon
Warre, Rev. F.	Bemerton, Wilts
Watkins, Rev. H. G.	Parkstone
Watson, Rev. William	County School, Dorchester
Watts, Rev. Canon R. R., R.D.	Stourpaine Rectory, Blandford

Watts, Colonel	34A, South Audley Street, London
Weaver, Rev. F. W.	Milton Vicarage, Evercreech, Somerset
Weld-Blundell, H., Esq.	Lulworth, Wareham
Werninck, Rev. Wynn	Walditch Vicarage, Bridport
West, Rev. G. H., D.D.	Ascham House, Bournemouth
Whitby, Joseph, Esq.	Frome St. Quintin House, Dorchester
White, Dr. Gregory	West Knoll, Bournemouth
Williams, Miss E. Blackstone	South Walks, Dorchester
Williams, Robert, Esq., M.P.	Bridehead, Dorchester
Williams, Mrs.	Bridehead, Dorchester
Williams, E. W., Esq.	Herringstone, Dorset
Wilton, E. H., Esq.	Antwerp Villa, Dorchester Road, Weymouth
Wilton, Dr. John Pleydell	Pulteney Buildings, Weymouth
Wordsworth, Rev. Canon	Tyneham Rectory, Wareham
Wright, H. E., Esq.	Southend House, Wickwar, Gloucester
Wynne, Rev. G. H.	Whitchurch Vicarage, Blandford
Young, E. W., Esq.	Dorchester

The above list includes the New Members elected in 1895.





New Members Elected since the Publication of Vol. xv.

DECEMBER 10TH, 1894, DORCHESTER MEETING.

Bonser, Geo., Esq.	Seaborough Court, Crewkerne
Evans, Rev. Canon	St. Alphege, Parkstone, Dorset
Stewart, James S., Esq.	Deesa, Parkstone, Dorset

FEBRUARY 19TH, 1895, DORCHESTER MEETING.

The Right Hon. Lord	
Walsingham, F.R.S.	Merton Hall, Thetford, Norfolk
Bellasis, W. Dalglish, Esq.	Lulworth Castle, Wareham
Fisher, J. B., Esq., M.D.	Dorchester
Godman, Frederick Du Cane	
Esq., F.R.S.	South Lodge, Lower Beeding, Horsham, Sussex
Ilbert, Arthur, Esq.	Westbrook House, Upwey, Dorchester

MAY 14TH, 1895, ANNUAL MEETING AT DORCHESTER.

Clarke, R. Stanley, Esq.	West Milton, Melpash, R.S.O., Dorset
Hudson, A. E., Esq., M.A.	The Pines, Parkstone
Lush, W. V., Esq., M.D.	12, Frederick Place, Weymouth
Lush, Mrs.	12, Frederick Place, Weymouth
Thurlow, Rev. Alfred R.	Hilton, Blandford

JUNE 10TH, 1895, BEAULIEU MEETING.

Gibbens, Rev. Wm., B.D.	Wyncombe, Idlesleigh Road, Bournemouth
Lafontaine, Alfred, Esq.	Athelhampton, Dorchester
Palmer, Colonel	West Hill House, Wyke Regis, Weymouth

AUGUST 22ND, 1895, MELBURY MEETING.

Brymer, Rev. J. G.	Childe Okeford Rectory, Blandford
Hayes, Miss	Dorset County Hospital, Dorchester
Pulliblack, Rev. Joseph	Rampisham, Dorchester
Simpson, Miss	2, St. John's Terrace, Weymouth

SEPTEMBER 10TH, 1895, WIMBORNE MEETING.

Fry, Edward Alexander,	
Esq.	172, Edmund Street, Birmingham
Whitby, Joseph, Esq.	Frome St. Quintin House, near Dorchester



The Proceedings
OF THE
Dorset Natural History and Antiquarian
Field Club

DURING THE SEASON 1894-5.

By NELSON M. RICHARDSON, B.A., F.E.S.

The work of the Club during the season 1894-5 has comprised the annual business meeting at the County Museum, Dorchester, on Wednesday, May 23rd, 1894; a meeting at Bournemouth and Christchurch on Thursday, June 21st; one in the neighbourhood North of Dorchester on Wednesday, July 18th; one in the neighbourhood West of Dorchester on Wednesday, August 15th; one in the neighbourhood of Shillingstone on Thursday, September 6th; also two in-door meetings at the County Museum, Dorchester, on Monday, December 10th, 1894, and Tuesday, February 19th, 1895.

Volume XV. of the "Proceedings" was issued in the winter.

THE ANNUAL MEETING, held at the Museum on May 23rd, 1894, was attended by about 30 members, the President being in the chair.

NEW MEMBERS.—Two were elected.

PRESIDENT'S ADDRESS.—The President delivered a shorter address than usual, mentioning that he had accepted the position with the proviso that he should not be expected to deliver any address. His address will be found in full in the present volume.

Some discussion was started by the Hon. Treasurer, who mentioned the Bill then before Parliament for the protection of wild birds' eggs, and said that, much as he disapproved of the wanton destruction of birds, he yet thought that restrictions might be carried too far in the case of *bond fide* naturalists and amateur collectors.

Sir Talbot Baker, in thanking the President for his address, referred to the passion for so-called sport in the male sex and for feathers and furs in the fair sex, both of whom were to be blamed as causing much indiscriminate slaughter of birds and beasts.

FINANCIAL REPORT.—The Hon. Treasurer said that the Club began the year with a deficit of about £37, owing to a great many subscriptions being in arrear. During the year they had entirely cleared off their debts, and had now a balance in hand of £16 19s. 4d. The total receipts for the year, including some back subscriptions, were £199 8s. 11d., and the total expenditure, including the sum of £37 above mentioned, amounted to £189 19s. 4d., so that the actual expenses of the year were about £150.

During the past year 40 new members had joined the Club, and 24 had been lost to it by death or resignation, the number of Members now in the Club being 313. The Treasurer also called attention to the following facts connected with the past history of the Club:—"That in the first published List of Members, in 1877, the number was 109, and of these 36 were still Members of it. He remarked that this was a large number to have kept together for 20 years, and told well for the vigour with which the Club began and had ever since gone on. There had been but one President during the whole time, two Treasurers only, of whom one had died, and three Secretaries, one of whom had been lost by death and one by departure from the county. The Club had thus shown a steady growth in Members during its 20 years of existence, and might well look forward to maintaining both in numbers and efficiency the satisfactory position it at present occupied.

The accounts were handed round for inspection and passed.

SUMMER MEETINGS.—Several letters, containing invitations to the Club and suggestions for meetings, were read by the Hon. Secretary.

An invitation from Mr. A. Pope to lunch at Wrackleford House in July and visit Poundbury, Stratton, and other places of interest in the neighbourhood was accepted, the Hon. Sec. proposing also on that occasion to read a paper communicated by Mr. A. J. Jukes-Browne, F.G.S., "On the Origin of the Valleys in the Chalk Downs of N. Dorset," which would be illustrated by a short drive to the N. of Dorchester.

An invitation received from Col. R. Williams to hold a meeting at Bidehead in August, in which part of the county there was much to see in the way of cromlechs, &c., and where he and Mrs. Williams would be happy to provide luncheon for the Club, was also accepted.

The Rev. J. Acton having written suggesting a meeting starting at Shillingstone and ending at Iwerne Minster, where he invited the Club to tea, Sir Talbot Baker added an invitation to lunch at Ranston, and these proposals were accepted for September.

In June it was decided to hold a meeting at Bournemouth and Christchurch. It was hoped that Mr. Starkie Gardner, F.G.S., would be able to attend and give an address on the Leaf beds at the former place; at

the latter there was ample material of interest in Mr. Hart's museum of birds and the Priory.

Other meetings proposed were at Blandford by Mr. Galpin, of which the special feature was to be the opening of a barrow at Busbury; at Salisbury and Stonehenge by Dr. Crespi, which was put off on account of the serious illness of Mrs. Wordsworth; at Stourhead by Mr. S. Bower and Rev. S. Goringe, which, as well as one or two others, was not seriously considered on account of the want of detail accompanying the proposal.

The voting was as follows:—Bridlehead, 18; Dorchester and Iwerne, 17 each; Bournemouth, 13; and Blandford, 7.

REPORT ON THE ADDITIONS TO THE MUSEUM.—In the absence from home of the Curator, Mr. H. J. Moule, the following report was read by the Hon. Sec. :—

"In my absence from Dorchester and consequent want of access to the register of gifts to the Museum, I must beg the members of the Field Club to be indulgent towards imperfections in this report. Farther, I venture to ask donors to excuse me for omission of notice of sundry gifts—omission almost unavoidable when a bad memory must take the place of the written record of acquisitions. In the library we are richer by several handsome and valuable books given by the ever-generous Mr. T. Dixon Galpin. A welcome addition to our group of books relating to Dorset is Brazley and Britton's description of the county, given by Mr. Bastick. Miss Elsie William has presented some most interesting little 18th century music books belonging to the old instrumental choir of Winterborne Monkton. Miss Ashley and Madame de Satgé have given 'Old England' in two volumes, and several volumes of the 'Art Journal.' An unknown friend has given a copy of Bowen's large map of Dorset, and a few other additions, given or bought, have been made to the Museum scrapbook. Passing to the Museum proper, Miss Ashley and Madame de Satgé have lent a very beautiful 18th century gown and a piece of rich brocade. In the Dorset section we have most heartily to thank several givers. Mr. Cunningham has contributed among other things a choice specimen of a flint fossil. Mr. Eustace Banks, Mr. Luckham, and others have given welcome additions to the collection of birds. We have bought a large star-fish, believed to be rare, but which as yet I have not had an opportunity of identifying. But our chief advance relates to antiquities. Mr. Pearce Edgumbe has added to a former gift a number of small bronze relics and coins, Roman and more recent, and the whole of both donations found of late years in his own grounds at Somerleigh Court, Dorchester. The Roman coins, numbering more than 150, and found within a few years in ground that

nearly for certain has been tilled for 14 centuries, constitute a very noteworthy example of the capacity for losing sight of money developed by the world-conquerors. Such coins as are legible have been read, noted, and arranged in order of time. Mr. Pearce Edgecombe, as aforesaid, is an old helper of the Museum. We have also to thank a new and personally unknown friend, Colonel Bramble, of Cleeve House, Yatton. About 40 years ago very remarkable researches and collections were made by Mr. Medhurst, of Weymouth. A portion of those collections was offered at a startling price to the Museum about nine months ago. From various causes this chance seemed likely to be lost, when Colonel Bramble stepped in and, in the kindest way, secured the antiquities and gave them to the Museum. They had been neglected for years, and the work of overhauling and repair has as yet been only begun. But already there are on view two Celtic urns, a row of black ware Roman vessels, including a fragmentary one of most remarkable form, an excellent little handleless amphora, a black marble mortar of uncommon shape, some quern stones, and several slabs of Kimmeridge shale of about the usual size of encaustic tiles, and probably intended for a like purpose. All these things are from Jordan Hill, Portland, or other places near Weymouth. But from the first-named spot come the two chief relics—the base and capital of a Tuscan pillar from the temple there. These are an extremely welcome gift, being the only worked stones of undoubtedly Roman Dorset cutting in the Museum. I may close by saying in a word that very shortly the Dorset collections, especially that of fossils, will be much enriched by a large number of specimens presented by the trustees of the Corfe Castle Museum, and to be actually transferred in the course of next month, if all is well. With this announcement this report may be fitly closed, but not without renewed regret that it is unavoidably so imperfect.—H. J. MOULE."

ELECTION OF OFFICERS.—On the proposal of Mr. Cunningham, seconded by Rev. G. Thompson, Mr. Mansel-Pleydell was re-elected President. It was proposed by Mr. Hansford and seconded by Mr. Gregory that Rev. O. P. Cambridge be re-appointed Hon. Treasurer, and proposed by Mr. Phillips and seconded by Mr. G. Mayo that Mr. N. M. Richardson be re-elected Hon. Secretary. These propositions were unanimously carried.

EXHIBITS AND NOTES.—Mr. Cunningham drew attention to a long spoon used by the Romans for taking out unguents from *ampullæ*, presented to the Museum by Mr. Pearce Edgecombe; also to a bronze celt of the fourth or most improved period from Hampshire, showing the socket for the handle and the places for the loops to tie it on. Also two

celts from Monkton gravel and Came Farm, and a blue glass bead found near Weymouth, which he said was 1,660 years old, and which showed various colours inside, caused by its partial decomposition.

The Hon. Treasurer showed a moth new to the county, *Eucosmia certata*, taken at Bloxworth, and a specimen of *Coronella brevis*, the Smooth Snake, also from Bloxworth. The figure of this species at p. 84 of Vol. VII. of the Club's "Proceedings" illustrates well the present specimen.

The Hon. Secretary exhibited a tooth of *Cimoliosaurus Portlandiens* from Portland. Remains of this species are rare, and the specimen is therefore of considerable interest. It will be remembered that a portion of the skeleton of an individual of this species is in the Museum. He also exhibited some fossil fish teeth from Portland and a large double stalaetite from the same locality about 15in. long and commented on the tubular form of the thinner portion of it. The substance of which it is composed, calcite, takes various and sometimes very beautiful forms at Portland. He also showed specimens in flower of two nearly allied plants from the Fleet coast, *Triglochin palustre* and *T. maritimum*, the flower of the latter being much thicker and less graceful than the former and the latter plant forming a denser tuft of bulb-like shoots. Also a specimen of an edible fungus, the Morel (*Morchella esculenta*), from Cheddington, sent by Mr. Creed.

Mr. Dale exhibited some specimens of woodlice, *Platyarthrus hoffman*, *seggii*, two species of *Coccini*, a very small whitish springtail, *Beckia albinos*, and some *Aphides*, all from nests of ants (*Formica flava* and *F. nigra*) at Portland. He mentioned that many species of insects were found in ants' nests, amongst others about 50 kinds of beetles, some of which were totally blind. The connection of many of these insects with the ants was not understood, the most obvious case being that of the *Aphides*, which exuded a sweet substance which the ants liked.

The Rev. Sir Talbot Baker gave some particulars of the damage done by a violent gale on December 12th last in a plantation of firs, of about half-an-acre, belonging to him. The wind cut a lane down the middle of the plantation, 56 yards long and ten yards wide, leaving in this area only one tree (*Pinus austriaca*) uninjured. Three were uprooted and eighteen others broken off, all being spruce except one *Pinus excelsa*. Photographs were shown illustrating these extraordinary effects of the gale.

The Hon. Treasurer said that in the same gale at Bloxworth a large elm tree, about 100 feet high, broke off short at about 40 feet from the ground, and that the wind was so strong that he was unable to stand without holding on to something.

The Hon. Treasurer read the following paper by Mr. G. Crickmay, the architect, on the result of Leigh Church being struck by lightning:—

“The church may be said to have been struck more particularly in three different places.

1. The eaves gutter to the chancel roof has been damaged on the north and south sides, and a cast-iron chimney stack on the north side near to the east end of the north aisle was also struck and damaged.

2. The electric fluid appears to have struck the south wall of the nave under the west window, causing damage to the face of the stone wall, displacing some of the stones, but not damaging the plastering on the inside, although the wood-block flooring immediately on the inside was disturbed by five or six blocks being displaced. From this the current passed upwards, damaging the leaded lights in the upper part of the window, forcing the inner arch up out of its position and some of the tracery, and splitting the keystone of the tracery and some of the cusping. The top hinge of the iron casement was also damaged.

From this point the current appears to have passed over the lead covering to the roof, through the east wall of the tower under the window, damaging the water tabling over the leaded roof, injuring the stonestraining in its upward course, and then passed through the east wall of the tower, making a considerable hole in the wall and partly destroying the upper piece of the oak framing to the bells on this side, and from thence through the lead to the upper part of the tower, which is clearly shown by the fact that the lead has been burred outwards, showing that the force was applied underneath. It then appears to have attacked the flag pole and passed over, splintering into shreds the upper half.

It is very singular that the current passed through the solid stone wall instead of through the open louvres of the two-light window immediately over.

It also blew out the leaded glazing from the small west window in the first stage of the tower.

3. The tower was also struck in the turret on the north side. A small window in the turret about nine feet from the ground was blown outwards, and the current in passing up the turret struck the second string, splitting off a piece of stone, and from there passed through the wall of the turret, evidently from the outside, as the stone where split off is blackened. A small hole is left on the inside, and the current must have passed out of a small hole which it made immediately under the upper string on the east side of the turret.

In this case, as in the second case, it is singular that the current did not pass through an open slit in the turret which is close by the point where it attacked the stonework.

My impression is that the church was struck twice by the lightning: first it attacked the iron gutters of the chancel, whence it passed along the leaded roof of the nave, attacking the wall and window on the south side of the nave, and when stopped by the east wall of the tower it ran up the wall and through as described under the second head.

The damage described under the third head appears to me to have been caused by a distinct and separate attack.

Some years since it was my duty to report on the damage done to the spire of Stanbridge Church caused by an attack of lightning, and in that case it was evident that the current was an ascending one, and not descending, the first attack having been low down and rising upwards.—G. R. CRICKMAY."

In regard to this the Hon. Treasurer reminded the members that in his paper (*Proc.* Vol. viii, p. 74) on the effects of a flash of lightning at Bloxworth, he suggested that the flash came from the ground upwards, and not from the clouds downwards.

There were laid on the table the last issues of the *Journal of the Royal Society of Antiquaries of Ireland*, the *Proceedings of the Hants Field Club*, and the report of the *National Footpaths Society*; also a communication from the *British Association* inviting help towards an ethnographic survey which it was proposed to make in selected villages where the inhabitants had not yet migrated much, by measuring, photographing, and taking various notes of a considerable number of individuals in each such village. The Hon. Secretary suggested that many suitable villages might be found in Dorset, and that some members might undertake the work; but unfortunately no one seemed inclined to do so, as it involved considerable expenditure of time and trouble.

BOURNEMOUTH AND CHRISTCHURCH MEETING.—The first summer meeting of 1894 was held on Thursday, June 21st, and was attended by about 70 members and friends. The party assembled at Bournemouth West Station at 10.10 a.m., and walked across the heath to the edge of the cliff at Dunley Chine, where the President introduced Mr. Starkie Gardner, who had investigated the Bournemouth beds under the direction of the *British Association*, and had very kindly come down on purpose to give an address upon them.

Mr. Starkie Gardner said he would give them a general introduction to the more minute and detailed description which they would be able to have as they went along the beach below. He took it for granted that that assembly was to a great extent an assembly of geologists, and that therefore he need not begin at the very beginning of the subject. The

President mentioned the great similarity between the Eocene beds and the Wealden beds below the chalk. They were indeed remarkably similar, and from the vicinity of the river beds the similarity in the land conditions before and after the chalk-sea existed could be inferred. Dorsetshire was very fortunate in possessing the most complete exposures of those two series that one could possibly wish to meet with.

Mr. Gardner has kindly communicated his address in the form of a paper, which will be found later on in the present volume.

The party then descended the cliff and walked along the beach to within a short distance of the pier, to the spot where the leaf beds were exposed near the top of the cliff. Several fossil leaves were obtained in a beautiful state of preservation by splitting the clay, but it was difficult to extract perfect specimens. Fragments of leaves could, however, be easily procured showing the venation distinctly.

A start was made for Christchurch by the 12.44 train, and the party on arriving there proceeded first to an old Norman house on the right bank of the river just below the bridge under the guidance of the Rev. G. H. West, D.D.

At 1.30 the members adjourned across the road to luncheon at the King's Arms Hotel, after which, the election of new members having taken place, the Secretary mentioned that he had been obliged to decline a kind invitation to the Club to tea from Mr. and Mrs. Reeves, of Foxholes, owing to the distance, and the President said a few words of thanks to Mr. Gardner.

The next visit was to the Priory, over which the Rector, Rev. T. Bush, conducted the party.

The last visit of the day was to Mr. E. Hart's Museum, which he had kindly invited the Club to inspect. It consists of a large number of cases of birds, with very few exceptions, shot by himself in the neighbourhood during the past 30 years, and mounted in a most natural and artistic manner. Mr. Hart's well-known love of natural history and powers of observation were shown in the many interesting facts and anecdotes of bird life with which he entertained the Club.

After tea at the King's Arms Hotel the members left by the 5.29 and 6.47 trains.

NEW MEMBERS.—Five were elected.

MEETING NORTH OF DORCHESTER.—The second out-door meeting was held on Wednesday, July 18th, the weather being most propitious. The Club assembled, to the number of 60, at 10.45 a.m. at Poundbury, where a paper was read by Mr. E. Cunningham "On Poundbury, the

Pastoral Camp, and the *Dunium of Ptolemy*," which will be found in full in this volume. It is illustrated by a map showing his views of the condition of that neighbourhood in Roman times, when he considers that a large lake occupied the low ground on each side of the Frome River above and below Poundbury, forming a strong defence. Another map was also exhibited showing the relative positions of Maiden Castle, Poundbury, and ancient Dorchester, as well as a collection of flint implements found on and near Poundbury.

The party then proceeded to the Pastoral Camp, situated in the valley a short distance to the north along a track on the east side of the hill, believed to be the ancient road connecting the two places. On the high ground above the camp stands a barrow belonging to Lieut.-General Henning, C.B., in which 13 interments were found, one primary in the middle and twelve outside.

At 12.30 p.m. the party were driven in brakes to Bradford Peverell Church. Little remains of the old church, which was pulled down about 1850, beyond the chancel arch, but the modern windows contain some very old stained glass which is of much interest, on which Mr. H. B. Middleton read the following paper:—

"I have been told that my words are to be few in reference to the stained glass in this church; but I must claim indulgence on the first visit of the Field Club to this parish to mention one interesting fact. It is almost waste of words to speak of the inestimable value of the *History of Dorset* written by John Hutchins; doubtless there are inaccuracies and mistakes in it, but with all its imperfections it remains a marvellous specimen of the indefatigable labour of a single man. The fact of which I desire to remind the members of the club is that this was the birthplace of John Hutchins. In the register of the parish is the entry of his birth and baptism in September, 1698. His father, Richard Hutchins, was curate of this parish as well as rector of All Saints, Dorchester. There are three windows containing ancient glass in this church, and they have been carefully described by the Rev. W. M. Barnes in his account of the churches of this Rural Deanery, published in the 12th annual volume of the proceedings of this club. I will take them in the order given there. On the north side of the chancel is a two-light window of brown and yellow glass, containing four medallions with figures and some beautiful diapered work as a ground. Mr. Barnes says that this yellow stain was discovered about 1310, and thinks that this glass may be of a date not much later. The Church is said to be dedicated to the Assumption of the Virgin, and the two upper figures may relate to that subject, the figure on the right representing God

the Father enthroned, holding the orb, and with the right hand raised in the act of blessing, that on the left representing the Blessed Virgin. The lower figure on the right also apparently represents the Virgin Mary with her symbol of the lily, but has more the character of a representation of the Annunciation. The fourth figure is modern. There is a history attached to the glass in the east window. In the year 1850, while the present church was being built, Dr. Williams, the warden of New College, Oxford, whose son had lately been appointed rector of the parish, offered two boxes of old glass then at New College for the use of the new church. This was glass of the 13th and 14th centuries, and is said to have been some of that removed from the west window in the ante-chapel at New College when the existing window, designed by Sir Joshua Reynolds, was put in. Some of it may also have come out of other windows in the chapel, which were repaired at an earlier period of the last century. On being presented to the parish the glass was placed in the hands of an eminent glass painter, Mr. N. J. Cottingham, who designed the present window, using as much of the old glass as possible. The drapery of our Lord in the vesica piscis, and of the angels and saints, and the white border, are ancient, but the design and the remainder of the glass is modern. The third window, that on the north side of the nave, is in some respects the most interesting, as connected with William of Wykeham and the history of the parish. The advowson of the parish belonged in the 13th and early part of the 14th century to the Priory of Andewell, near Basingstoke, which was dependent on the great Benedictine Monastery of Tiron, near Chartres. In the reign of Edward III. the property of these alien Priors was sequestered by the king during his great war with France, and when possible the foreign monasteries disposed of such estates. The estates of the Priory of Andewell, including the advowson of this parish, were purchased by William of Wykeham towards the end of the 14th century for the purpose of endowing his newly-founded College of Winchester, and the patronage has remained in their hands to the present day. The centre part of the window is ancient, and displays the well-known arms of Wykeham—a chevron, or two chevronels, between three roses, gules, which were adopted by his College of Winchester. They are surrounded by the Garter and surmounted by the Bishop's mitre. I would call attention particularly to the spelling of the motto 'Manare makythe man,' and also of Wykeham's name below, 'William Wykkam.' It is known that the College of Winchester had to repair, if not to rebuild, the church soon after they came into possession of it, and it seems likely that this window may have been put in to commemorate the fact of this restoration or rebuilding."

Stratton Church was next visited, on which and on a cross in the churchyard a paper was read by Mr. A. Pope, which will be found in full in this volume.

A short discussion ensued, during which the Rev. W. M. Barnes said he had found no cross in the neighbourhood of Ham Hill stone of an earlier date than the 15th century. This cross might have replaced an earlier one.

The party then drove to Wrackelford House, where Mr. Pope had kindly invited them to lunch. The Secretary having, in the absence of the President, offered the thanks of the Club to Mr. and Mrs. Pope, the health of Colonel Bramble, who was present as a guest of the Club, and who had lately made a very handsome and interesting donation of local antiquities (the Medhurst Collection) to the Museum, was proposed and acknowledged.

After luncheon the members drove to a spot on the old Sherborne-road, two miles from Dorchester, called Leap Gate, where the Secretary read a paper by Mr. A. J. Jukes Browne, F.G.S., "On the Origin of the Valleys in the Chalk Downs of N. Dorset," which will be found in the present volume. To illustrate this paper a drive was taken along the road mentioned and round by the New Asylum, returning along the valley of the River Cene to Chaiminster. The following notes, being, with slight additions, those supplied by Mr. Jukes Browne, explain the interesting geological points along the road taken, and were read by the Secretary at the various stopping places:—

On leaving Wrackelford the gentle slope of the N. side of the Frome Valley, compared with that of the S. side, should be noticed. This is caused by the tendency of the river to encroach on its S. bank. For the same reason it is only on the N. side that old river-gravels are found, the edge of the older gravel, which underlies the modern alluvium, forming a narrow strip through Burton and Frome Whitfield. Then comes a slope of chalk leading up to the gravel-covered plateau on which the County School is situated, also to Solomon Hill just above Wrackelford and the high ground to the E. of the County School, and, further on, to that N. of Stinsford.

The plateau on which the County School stands is not quite level, but rises gently northward 225 feet to 255 near the school, and 274 at the corner of Wolveton Eweleaze. There is then a sharper rise on to a still higher terrace of gravel, which goes to more than 300 feet above the sea and 179 feet or so above the present level of the River Frome.

Passing on to Leap Gate we observe that here the old gravels are cut through by a valley which trenches into the underlying chalk. The high

ground to the N.E. is covered by a continuation of the gravels, rising to about 360 feet. This valley was formed by rainfloods during the last period of upheaval of the land, when the Frome Valley was rapidly deepened.

Driving on about $\frac{1}{2}$ mile to Charlton Farm and looking S.E. we see the abrupt termination of the gravel plateau, which forms a kind of scarp with lower ground to the N. of it, though when this gravel was deposited by the ancient Frome the plateau was, of course, at the bottom of the valley of that period in which the river ran, so that the ground to the N. and S. was then higher than the gravel-covered plateau.

One reason why portions of the gravel plateau have remained intact whilst the chalk, which was higher, has disappeared, is that the gravel, being insoluble by water, has protected the chalk beneath it, whilst the unprotected portions of the chalk have been gradually dissolved and washed away by rain.

About a mile further on and just before the turning to Piddleshinton we stop, and in the angle formed by the two roads, about $\frac{1}{4}$ mile from each, the ground rises to 553 feet, and is capped by an outlier of Eocene formation, the most northerly patch of Eocene in Dorset. The Eocene is covered by brown sandy loam, which is part of the soil of the high-level plateau, made by the sea in Miocene times, over which the rivers first began to run. If we look thence across the valley of the Cerne River we see to the west the top of the down above Forston Farm, which is also part of the old plateau and covered by the same kind of soil. There are several other patches on tops of hills in the neighbourhood, and a large one, a mile long, on Black Hill, half a mile to the E. of Cerne.

Continuing along the old Sherborne-road for half a mile we reach Forston Higher Farm or Hill Barn, where we turn to the left along a rough road to Forston Farm in the Cerne Valley. On the way we look into a typicalcombe or secondary river valley cut out of the chalk by rain running off the high plateau, and gradually deepened as the Valley of the Cerne was deepened during the upheaval of the land.

Driving back to Channinster along the valley of the River Cerne we note the alluvial water meadows formed by the deposition of mud and soil carried by the stream, when backed up its valley by floods in the Frome Valley consequent upon the subsidence of the land. We note also the depth to which the valley was cut during the long period of upheaval and erosion; the slopes on each side of the river will meet each other beneath the alluvium at some unknown depth. The alluvium of the Cerne Valley merges into that of the Frome Valley, and in the latter also the gentle northern slope will meet the steep southern slope at some depth (unknown) beneath the water meadows.

In pre-historic times the Frome Valley must have been a swamp converted into a long lake after heavy rains, and was doubtless a happy hunting ground for Neolithic man.

Time being short a few minutes only were spent at Charminster Church (see Proc. Vol. XV., p. xlvii.) and after tea at the Vicarage the party left for Dorchester Station.

NEW MEMBERS.—Five were elected.

MEETING WEST OF DORCHESTER.—The third out-door meeting of the Club was held on Wednesday, August 15th, and was very largely attended, about 120 being present. The party drove from Dorchester to Hardy's Monument and walked across the down to Hell Stone, where they were met by a detachment of about twenty from Weymouth, who drove *via* Chickerell and Portisham, reaching Hell Stone at 11.30 a.m.

By the kind permission of Mr. Manfield, the owner, a barrow situated only a few yards from Hell Stone had been opened by Mr. Cunningham and Rev. H. J. U. Charlton a few days previously, and the urn and a few worked flints found in it were exhibited by Mr. Cunningham, who read a paper on the subject, which will be found in the present volume. The urn has been placed in the Dorset County Museum.

It will be remembered that a paper was read on Hell Stone by Mr. Cunningham in Portisham churchyard at the Abbotsbury meeting of the Club on August 9th, 1893 (Proc. Vol. XV., p. 52), but time did not then allow of the climbing of the hill.

At 12.15 the breaks were rejoined and the "Valley of Stones" shortly reached.

The bottom and part of the S. side of this valley is covered with numerous large Sarsen stones, which in one place appear to have been arranged in a circle, of which there are several examples in this neighbourhood. Here the President read a paper "On the Valley of Stones," which will be found later on in this volume.

Luncheon was partaken of at Bridehead by the kind invitation of Colonel and Mrs. Williams, and after the usual loyal toasts and that of the host and hostess had been duly honoured and four new members elected, the party dispersed through the grounds for a short time, and many entered the Church of Littlebredy close by.

The church, which is dedicated to St. Michael, was rebuilt in 1850 by the then Lord of the Manor. The existing plan was extended by the addition of a bay at the west end, a north aisle of three bays, and a vestry on the south of the chancel. The style of the architecture is Early English, this being adopted to correspond with portions of the old church

which were incorporated in it. The stone was brought chiefly from Caen, in Normandy. Within the building the east window has three lancet lights, with dog-tooth ornament round the arches, which are supported by shafts of Purbeck marble. The principal entrance is through the lower storey of the tower, which stands at the east end of the south aisle, and has been surmounted by a spire. The walls of the church bear several monumental tablets to members of the Williams family.

On the road to Winterbourne Abbas a halt was made at the "Nine Stones," another circle in good preservation, adjoining the road. Nine stones, from three to seven feet high, are placed in a circle 28 feet across.

Mr. Cunningham stated that such circles were usually places of sepulture, from which the earth which had covered them and the interment had been removed by denudation. He referred to a barrow on Mr. John Mayo's land, which was surrounded in the same way by nine large stones, also to the larger circle at Gorwell in this neighbourhood. It had been hoped that a visit might have been made to Gorwell circle and to the "Grey Mare and Colts" near Bridehead, which is a long barrow with a cromlech of several large stones at one end, something in the way of Hell Stone; but it was found impossible to include them in the programme.

At Winterbourne Abbas Church the Rector, the Rev. W. F. Cornish, gave a short address as follows :—

"The Church of Winterbourne Abbas consists of chancel, nave, north aisle, with porch, and a tower on the west. The chancel is thought to have been originally Early English, and it is supposed that at a former period there was a south aisle of Early English character, there being incorporated in the outer wall two pointed arches evidently forming the means of communication between the nave and the aisle. The tower is fine. It is of three stages, which are indicated by bold string courses, which on the west face are continued as labels over the door and window. A sculptured figure is inserted at the apex of the door, and there are sculptured corbels at the usual points in the window. The tower is battlemented, and the battlements are adorned with some remarkable examples of those sculptured monstrosities — gargoyles. The arch leading from the nave into the tower is of three orders, lofty, and of good proportions. The tower contains three bells, which bear severally the following inscriptions :—'*Sit nomen Domini benedictum*,' "Pet. Bishop, Rob. Whittle, T. K. Anno Domini, 1715," and "Hallvia, G.P., 1604.' It is barely six months since the church was re-opened after a

thorough but judicious renovation. The bulk of the cost of the work, £1,000 in round figures, was defrayed by Colonel R. Williams. There was originally in the church a rood loft, and the stairs leading up to it, which are contained in an exterior buttress-like projection of the south wall, were opened out during the restoration, having been before hidden from view. The remarkably fine piscina is likely to be the most attractive feature of the chancel to the antiquarian. It contains a stout shelf, and it is surmounted by a hood mould of pyramidal design. The upper edge of the hood mould is adorned with crockets of foliage, and a large cluster of foliage forms the finial of the apex. Then there are traces of a hagioscope from the aisle, and indications of a 'leper squint' through the chancel wall. There is in the north aisle a wooden gallery bearing the date 1701, and this, though neither ornamental nor possessing archaeological interest, was left untouched during the restoration, because its abolition would have seriously entailed the seating accommodation of the church. A new carved roof of Kerry pine was put in during the recent restoration."

The Club had been kindly invited to tea at Steepleton Manor by Mr. and Mrs. Stilwell, and a great variety of interesting objects were shown to the members, ancient pottery and other relics, lace, china, &c.

The Church of Winterbourne Steepleton, opposite to the Manor House, was inspected by many of those present. A paper on an early-sculptured stone in this church representing an angel (?), together with an illustration of the stone, will be found at p. 81 of Vol. V. of the "Proceedings" of the Club.

The members left Steepleton at about five o'clock.

Four new members were elected.

MEETING IN THE SHILLINGSTONE NEIGHBOURHOOD—The last outdoor meeting of the year was held on Thursday, September 6th, the day being fine and bright in spite of threatenings of thunder.

The party, numbering over 100, met at 11.6 a.m. at Shillingstone Station and drove to Fiddleford Mill, where the mill, with an inscription on the wall and two old cottages close by with fine ceilings and chimney pieces, excited great interest. The Rev. Sir Talbot Baker read a paper by Mr. A. C. Dashwood on the buildings and their history, which will be found in full in this volume.

The party then drove to Hod Hill, which they ascended under Sir Talbot Baker's guidance, and after walking for some distance along the top of the inner rampart halted at one of the entrances to the camp, where a short address was given by Sir Talbot, who explained that they

had been walking along the inner mound of the Celtic encampment. They would observe that the entrance to the camp was made very much on the curve, and similar, in that respect, to the other two entrances to the camp, one at the east and the other at the south. The hill on this, the west face, was excessively steep and ran direct down to the river beneath, which acted as a defence or wet ditch. The mound and fosse there were very shallow, showing the Celts did not wish to throw away their work on that side. On the left inside the earthwork, or castrum, the ground was ploughed up in the "fifties," and many articles of Roman-make were found. A large number were secured through the enterprise and intelligence of the late Mr. Durdan, and were now in the British Museum. When his (Sir Talbot's) late brother bought the ground, it was again laid down to grass, and as long as it belonged to him (Sir Talbot) it should remain so. A move was then made to the beginning of the Roman earthworks, where Sir Talbot pointed out that at the bottom the mounds were low and broad. The ditches were also correspondingly shallow, although he had been informed that two feet had been filled up with flints and *débris*. The works, however, were as straight as line could make them. The way to get water was always a difficulty in those camps, but in that one the difficulty was less hard to surmount than in some others. It appeared that the Romans made a straight road to connect with the old curved path leading to the water made by the Celtic race. The path died away by the wood close to the river, from which probably the water was carried to the camp in skins. At the gateway, or southern entrance to the castrum, Sir Talbot pointed out that the mounds were flat, which was due to the Romans depending more upon their mechanical means of defence and their superiority in weapons as compared with those other rude tribes. There was, however, an extra mound and ditch there to increase the defence of the entrance, and, further, a little breastwork, so that if the enemy had made a rush, they might be broken in their attack on the Romans inside. At the salient angle in the earthwork further on he pointed out that the Romans had strengthened the defence by the construction of another ditch. That led them to the east gate, which was similar in description and plan of defence to the south gate. He again alluded to the act of Vandalism in ploughing up the interior of the camp, which he thought would not have occurred if the Dorset Field Club had been at that time in existence, and then went on to enumerate a number of the articles found on Hod Hill, including spear and arrow heads, swords, knives, spurs, buckles, keys, &c. But few of the objects, however, were of bronze, most of them being of iron. The question was who constructed

the camp. He thought there was no doubt that its formation was connected with the invasion of Vespasian under Claudius in A.D. 44. Two historians wrote very similarly on that subject, the only difference in fact being that 30 and 32 were the numbers of the battles given as having been fought. Both writers spoke of the Isle of Wight as taken by the Romans. Then there was the question where did Vespasian land. Their late distinguished member and sweet Poet, Mr. Barnes, in a paper published some ten years ago, thought he went up the Dart as far as Totnes. He himself considered that was too far, and was much more disposed to agree with their Dorset antiquarian, Mr. Warne, who thought the landing took place at Swanage Bay and the route taken was by Flowers (Florns) Barrow, Binson, Maiden Castle, Egardon, and so on out of the county. No doubt he would try to keep his fleet on his left as long as he could for his base of operations, but there was a question whether he would have allowed a series of strong fortifications on his right, only twenty miles away, Hod, Rawlsbury, &c., to have remained unattacked. For himself he was of opinion that the strong capacity which distinguished the Roman conquerors would have led Vespasian to have taken those fortifications. There were other considerations, like the evidence of coins, &c., which, on the whole, led him to believe that Vespasian, or engineers under him, constructed that camp. Mr. Cunningham said that that camp, including the Roman part, was no doubt originally like those of Poundbury, Spettisbury, and Shaftesbury. He was in hopes that some of the things found in the camp might be obtained for the day, but Mr. Durdin's collection having been purchased for the British Museum they could not be taken therefrom without an Act of Parliament. He produced a list of the articles of the Durdin collection taken from the camp. The Rev. J. Acton said he had some conversation with General Pitt-Rivers, who said he had not the least doubt that Hod Hill was the *Hernium*.

The Members of the Club then drove to Ranston House, where they partook of luncheon at the kind invitation of Sir Talbot and Lady Baker. After the toast of "The Queen," that of "Our Hosts" was proposed by the Treasurer in the absence of the President, who said that in 1878 when the Club was entertained at Ranston he believed there were 35 present. Now there were three times that number.

After luncheon and the inspection of some of the pictures and articles of vertu which the house contains, the party drove to Hambledon Hill, and walked through the encampment where Mr. E. Cunningham read some notes, regretting that he had been unable to make excavations.

which would have enabled him to speak on the subject with more decision. Since this meeting he has, however, had the desired opportunity and has written and read at one of the winter meetings the paper which will be found in this volume.

Part of his remarks were as follows :—

" In 1645 Hambledon Hill was occupied by 4,000 of the Clubmen of Dorset and Wilts ; they were called Clubmen because they were armed with rough country weapons, mere bludgeons if no other could be had. In Carlyle's ' Letters and Speeches of Oliver Cromwell,' page 196, are several quotations on the subject. From Sherborne the Lieut.-General Cromwell advanced further to a meeting of a greater number of about 4,000, who betook themselves to Hambledon Hill, near Shrewton. In a letter of Cromwell's dated August 4th, 1645, he says ' We marched on to Shaftesbury, when we heard a great body of them was drawn up together about Hambledon Hill. I sent up a forlorn hope of about 50 horse, who coming very civilly to them, they fired upon them ; and ours desiring some of them to come to me were refused with disdain. They were drawn into one of the old camps upon a very high hill. They refused to submit and fired at us. I sent a second time to let them know that if they would lay down their arms no wrong should be done them. They still—through the animation of their leaders, and especially two vile ministers—refused. When we came near they let fly at us, killed about two of our men, and at least four horses. The passage not being far above three abreast kept us out, whereupon Major Desborow wheeled about, got in the rear of them, beat them from the work, and did some small execution upon them, I believe killed not twelve of them, but cut very many, and put them all to flight. We have taken about 300, many of which are poor silly creatures whom, if you please to let me send home, they promise to be very dutiful for time to come, and ' will be hanged before they come out again.' "

The remainder of Mr. Cunningham's notes are incorporated in the paper given later on.

Descending the hill the party drove to Iwerne Church, on which a paper was read by Rev. J. Acton, which is given in full in this volume.

After a short inspection of the church, owing to the limited time remaining, the members adjourned to the Vicarage, where they had been kindly invited to tea by the Vicar and Mrs. Acton.

The trains being inconvenient, it was necessary for some members to drive the whole way through Blandford to Wimborne Station to catch the 7.46 down train.

Five new members were elected at this meeting.

THE FIRST WINTER MEETING was held in the Reading Room of the Museum on Monday, December 10th, 1894, about 40 being present, the President in the chair.

NEW MEMBERS.—Three were elected.

DONATIONS.—The Hon. Secretary announced the gift by the British Association of their volume of "Proceedings" for 1893, and by the Warwickshire Naturalists' and Archaeologists' Field Club of their two last published reports, for 1892 and 1893.

The Hon. Treasurer announced the gift of the last volume of "Dorset Records" to the Club by the authors, mentioning that unless more subscribers were forthcoming, this valuable work would have to be discontinued for want of funds.

The Hon. Treasurer mentioned that there were several members who had paid no subscriptions, in spite of continued applications, for various terms up to (in one case) 11 years, whose names were still on the list of the Club. It was resolved that the Hon. Sec. be requested to write to some of these who were most in arrear, and that should payment not be made by the next meeting of the Club the question of striking them off the list should be considered.

It was suggested by the Hon. Treasurer that an index to the 15 volumes of the Club's "Proceedings" would be a valuable work, as there was now considerable difficulty in finding any particular subject. The general opinion of those present was in favour of such an index, but the question as to who would undertake the compilation was necessarily left open.

EXHIBITS.—By the Hon. Treasurer : (i.) Specimen of curiously deformed blossom heads and stalks of a thistle from Swanage, having the stalks flattened and the flowers much extended laterally.

The Hon. Sec. stated this was what was known as "fasciation." Dr. Masters says ("Vegetable Teratology," pp. 12, &c.): "This is one of the most common of all malformations and seems to affect certain plants more frequently than others. In its simplest form it consists of a flat ribbon-like expansion of the stem or branch."

(ii.) A flowering spike of Bluebell (*Hyacinthus non-scriptus*) with very long bracts, much longer than flower and pedicel, some about two inches in length; flowers mostly borne in pairs, there being at least 26 flowers on the one flower stalk. From Wainwell, near Dorchester.

(iii.) Specimens of *Eriophorum latifolium* (Broad Leaved Cotton grass) found in Morden Bog, near Bloxworth, in July, 1894.

By Mr. B. A. Hogg : (iv.) A triangular flint celt of unusual form, thick at the base and worked towards the apex, about 4in. long, for using in the hand; found in the drift-gravel, near Bournemouth.

By Rev. Geo. Bridges Lewis : (v.) A full-sized model of an Elizabethan silver chalice in Chessington Church, near Kingston-on-Thames—plate marks of 1568. Height, 3½ in. ; diam. of mouth, 2½ in. ; of base, 2 in. The ribbons, in two separate circles, which ornament the cup, are of the pattern usual in Elizabethan chalices, but there are not very many chalices of this size. The model was made for and given to the exhibitor by the Vicar in 1856.

Rev. Canon Ravenhill stated that there was an Elizabethan chalice at Buckland Newton, but it was larger than the model exhibited.

By the Hon. Secretary : (vi.) A stone celt dug up near Maiden Castle in 1893, size 6 in. × 2½ in. × 1 in., a small piece missing from the handle end.

The President remarked that the stone of which it was composed was from one of the greensand series and noticed the presence of glauconite.

(vii.) Three engraved stones. (a) Engraved chalcedony cone, stated by Sir A. W. Franks and Mr. Murray, of the British Museum (1894), to be Assyrian, 5th or 6th century B.C. It represents a priest worshipping at an altar or temple of a goddess (Aa or Istar) with the crescent moon, emblem of the Divinity above. Compare case B in Assyrian Room No. 74

A.R.	and	A.R.	the last being dated
B.B. 79		B.B. 90	about 700 B.C.

(b) Engraved sard, hemispherical in shape. Stated by the same authorities to be Sasanian, 3rd or 4th century, A.D. A very rough representation of a man standing with a spear in each hand ; his legs apart, an animal on the ground between them. Compare engraved stones Nos. 839-42 and 789 in table case in Assyrian Room in British Museum. These five seals represent the same subject as the present one and form a series, of different degrees of finish, shewing what is intended to be represented, that on the most finished ones being clearly meant for a man, &c., whereas without some such guidance the subject on the present one would be decidedly uncertain in character.

(c) Engraved chalcedony, oval. Stated by Mr. Murray to be rather late Roman. Represents a figure, seated, holding on his hand a small figure, which is about to crown him with a wreath.

By Mr. F. B. Groves : (viii.) A specimen of the raw fibre of *Phormium tenax* (New Zealand flax) from a factory situated at the head of Lake Wanaka, New Zealand, where it grows luxuriantly.

(ix.) The loop end of a kind of vine some 20 feet long, which had been used by Australian aborigines, near Lismore, N. S. Wales, when climbing trees in search of wild honey or opossums. The tree is

encircled by the vine which forms a hoop, inside of which the native places himself, and then walks up the trunk, carrying the hoop with him.

(x.) A specimen of Lignite presented to the Museum by Mr. James Andrews, of Swanage. It was obtained from the floor of Swanage Bay, after great denudation by a severe storm when the Wealden beds were exposed. The wood examined microscopically proved to be coniferous. The specimen has undergone considerable flattening by pressure.

(xi.) Two drawers of the recently acquired insect cabinets were exhibited by the Curator of the Museum, containing Lepidoptera presented by the Hon. Treasurer and the Hon. Secretary.

PAPERS.—Five papers were read which will be found in the present volume. The first paper was read by the President, "On the Beaver (*Caster fiber*), whose remains were found in the valley of the Stour near Keynston Mills in 1893." It was illustrated by several drawings of the bones found.

Mr. G. Galpin described the circumstances under which the bones were discovered. They lay in a hole in the chalk about three or four feet wide which had apparently been entirely covered in, and were found by workmen who were engaged in removing the chalk. Several rabbit burrows led into this hole, which was situated at a distance of about 20 yards from the present river, the intervening space being occupied by a withy bed. He suggested that the bones were those of an old solitary beaver, turned out of its community because it would not or could not work.

Mr. Clement Reid, F.G.S., said that it was the first instance he knew of of the finding of beaver's bones in a cave. They usually lived in holes in banks. Beavers' remains were frequently found in alluvial deposits, but they had been neglected by geologists as too recent and also by archaeologists.

The second paper was read by Mr. Clement Reid, F.G.S., "On Charred Pinewood from Dorset Peat-Mosses," and illustrated by specimens of the charred wood.

A discussion followed relating chiefly to the practical extinction of the Scotch fir (*Pinus sylvestris*) in England, south of the Clyde.

The Hon. Treasurer stated that there was a very large Scotch fir at Bloxworth, four feet in diameter, probably 150-200 years old. Mr. Moule asked what evidence there was of the extinction of the Scotch fir and mentioned the testimony of the Scotch noddeman 200 years ago who saw a dead wood of Scotch fir, and then in his old age saw people digging peat on the same spot. The Scotch fir was confined to a small

part of Scotland only. Mr. Clement Reid said that the Scotch fir existed in England in Neolithic times, but Julius Caesar, who records a great deal, does not record it, old Herbals do not mention it, Evelyn's works make no allusion to it, and no books more than 150 years old speak of its existence. It occurs now only when planted artificially.

The third paper was read by the Hon. Secretary on "*Tinea vinculella*, H.S., a species of Lepidoptera from Portland, new to the British Fauna, with other Entomological Notes," and illustrated by a drawing by Mrs. Richardson of the moth and the very interesting larva and case, shewing also the latter *in situ* feeding on the lichens on a piece of Portland stone; also by specimens of *Tinea vinculella* and its living larva in its case; two specimens of *Plusia ni* bred from Portland; *Blabophanes imella* from Portland; and other species of Lepidoptera alluded to; also several species of rare ants, including *Solenopsis fugax* from Portland, *Myrmecium latreillei* from Chickerell, and *Tetramorium guineense* from Sir W. Marriott's orchid house near Blandford.

The fourth paper was read by Mr. H. S. Eaton (past President of the Royal Meteorological Society) on "Dorset Annual Rainfall, 1848-92," and was illustrated by two large maps, one shewing by shading the average rainfall over the county and the other the elevations. The paper was based upon records extending in some cases as far back as 1848.

Mr. Galpin gave an account of a storm in December, 1886, when he recorded no less than 4.1 inches of rain in 24 hours.

The President at this point being obliged to leave the meeting, the chair was taken by the Hon. Treasurer.

The last paper was read by Rev. W. Miles Barnes on "The Common-place Book of a Dorchester Man, A.D. 1625-1635."

The meeting broke up at about 4.30 p.m.

THE SECOND WINTER MEETING of the Club was held on Tuesday, February 19th, 1895, in the Reading-room of the County Museum, Dorchester, about 35 members being present. The President occupied the chair.

NEW MEMBERS.—The Hon. Sec. stated that a great honour had been done to the Club by the accession of two Fellows of the Royal Society, whom he had the pleasure of proposing as members, both distinguished entomologists, Lord Walsingham and Mr. Frederick DuCane Godman. Three other new members were elected.

The Hon. Sec. stated that not one of the eight members whose subscriptions were several years in arrear had answered his final request for

payment, and it was decided to strike them off the list. Volume XV. of the "Proceedings" was laid on the table.

The Hon. Sec. referred to a proposition which had been made at the last meeting that an index should be published to the sixteen volumes of the "Proceedings." No one had then undertaken the task, but he had lately received from the President a MS. index to their publications, which it must have cost him a great deal of time and labour to prepare. This index is printed at the end of the present volume.

Some discussion took place as to the months in which the summer meetings should be held, it being suggested that May should be substituted for September. It was, however, decided to make no change from the usual arrangements.

EXHIBITS.—(i.) Mr. H. J. Moule exhibited a black variety of a bird which was not satisfactorily identified, but was thought to be a bunting. It was killed at Affpuddle and presented to the Museum by Mr. Kindersley.

(ii.) Also an iron chain found in the middle of an old wall at Moigne's Court, Owermoigne, a house built in the 13th century. He suggested that it had connected a pair of handcuffs, but by some it was thought to be a dog couple.

(iii.) Also seeds of a "jumping bean" from Brazil, which contained larva of *Carpocapsa saltitans*, a small moth allied to the species (*C. pomonana*), which bores into apples.

Mr. R. Fetherstonhaugh Frampton showed (iv.) a copy of the illustrations in the Louterell Psalter beautifully executed by Lady Harriot Frampton and her sister, the Marchioness of Lansdowne. The original Psalter, made by order of Geoffrey Louterell, 1st Baron, who died 25th Edward I., was shown at Lulworth Castle at the meeting held there August 19th, 1891. (Proc. vol. xiii., p. 142.)

(v.) Also two editions of Eikon Basilike.

The Hon. Sec. exhibited (vi.) a small branch of whitethorn cut on January 17th from a tree at Sutton Pointz, near Weymouth, bearing buds, berries, and a few leaves, but no opening flowers. This tree, which is doubtless from a cutting of the Glastonbury thorn, flowers about Christmas time, as well as at the usual time in May, of which latter flowering the present berries are the result. Numerous buds and a few leaves are produced and flowers mostly open about the first week in January, but not much after that date. It is said that the colder the weather the better the flowers open. The original thorn was not living now, but tradition said that it arose from Joseph of Arimathea coming to England and planting his staff at Glastonbury,

the staff taking root and growing. In Queen Elizabeth's time the thorn had a double trunk, but they were cut down by two of those "military saints," the Puritans. There were other thorns of the same kind in the neighbourhood. Mr. Hansford observed that he had seen one in Glastonbury Abbey Grounds. The Hon. Sec. added that he had taken a few cuttings from the thorn and also sown a few seeds. As the Club were on an arboreal subject Mr. Hansford mentioned that many of the old trees on the Bridport and Weymouth roads had split up the trunks owing to the frost. The same thing happened not many years ago, and the fresh split had in several cases occurred where the previous split had calloused over. The Rev. S. E. V. Filleul said that this had occurred in the wych elms.

The Rev. G. B. Lewis exhibited (vii.) a piece of cabin fitting bored by *Teredo navalis* from the "Vladimir," the last Russian steamer sunk in Sebastopol Harbour.

(viii.) Also a patch glass of about A.D. 1718, with an engraving in the back believed to be by Hogarth.

Mr. Cunningham exhibited (ix.) a starfish.

(x.) Roots of *Carex riparia*, and remarked upon the quantity of water which they were capable of containing.

The Hon. Treasurer exhibited (xi.) a box of moths, including *Cosmopteryx orichalceella*, which had been abundant on the heath at the beginning of July, *Zelleria insignipennella*, *Luperina cespitis*, *Bactra lanceolata*, and *Elachista rufocinerea*.

Mr. A. Pope exhibited (xii.) a bag of coins found by his workmen whilst excavating the site of his new house, South Court, Dorchester.

PAPERS.—Five were read, which will all be found in full in the present volume.

(1.) In the absence of Rev. W. Miles Barnes, a paper by him on "Dorset and King John; Notes on the Pipe Rolls (Dorset) of that Reign, supplemented and illustrated by references to the Patent and Close Rolls of John's Reign (Part II.)," was read by Mr. Moule.

(2.) "On New and Rare British Spiders," by the Hon. Treasurer.

(3.) "The Antiquities of Dorchester with hints for research," by Mr. H. J. Moule.

Mr. Moule, at the end of his paper, added that a piece of Roman pavement had only that morning been discovered during excavations for building in Cedar Park, and many members went after the meeting to inspect it.

Mr. Cunningham said that he had put spade and pickaxe into most of the things mentioned by Mr. Moule and had enough information to write a book on the subject.

Mr. Pope said that he thought that the Roman roads were much narrower than modern ones. He was satisfied that High-street was part of the old Roman road running from Puddletown to Bridport. When the brewery was built the workmen cut through what was beyond doubt the old Roman way leading from the town to Maumbury Rings.

(4.) "A Legend of Milton," by Mr. F. Fane.

In the discussion which followed the reading of Mr. Fane's paper on Milton Abbey Rev. G. Bridges Lewis alluded to the practice of preserving bodies in spirit and mentioned the following passage from Wesley's Journal, August, 1770:—

"Ang., 1770, Thursday 2nd. Some friends from London met us at St. Albans. Before dinner we took a walk in the Abbey Near the east end is the tomb and vault of good Duke Humphrey. Some now living remember since his body was entire. But after the coffin was opened so many were curious to taste the liquor in which the body was preserved that in a little time the corpse was left bare, and then soon mouldered away. A few bones are now all that remain. How little is the spirit concerned in this."

It seems that at least as late as, say 1720, Duke Humphrey's remains were in good order.

In Mr. Lewis' parish of Northam, about twelve miles from St. Albans, when the old church was pulled down and rebuilt in 1810, a coffin was accidentally picked by a tool, or otherwise opened, and a common man present gave himself the treat of tasting the liquor in which the corpse was preserved. He was told this about 1860 by his sexton, who himself had witnessed it when a boy.

The phrase "To dine with Duke Humphrey" originated from the fact that people travelling by public conveyance used to visit the Abbey and the Duke's tomb during the time allowed to the passengers for their meal at the inn.

(5.) "List of a Small Collection of Marine Mollusca from a Raised Beach on Portland," by Mr. E. R. Sykes.

This paper was illustrated by specimens of shells from the Raised Beach.

The meeting broke up at about 4 p.m., a paper by Mr. Cunningham on "Additional Notes on Hambledon Hill" being taken as read for purposes of publication.

NEW MEMBERS.—Five were elected.

Dorset Natural History and Antiquarian Field Club.

Dr.

RECEIPTS and EXPENDITURE from May 8th, 1894, to May 8th, 1895.

Cr.

1895.			1894.		
RECEIPTS.			PAYMENTS.		
May 8.—By Balance from 1893-4	...	£ s. d.	July 31.—Morgan and Kidd, Engraving Plates	...	£ s. d.
" Subscriptions and Arrears to May 8th,	...	16 19 4	Sept. 10.—Meischbach and Co., ditto	...	3 11 0
1895 ...	...	...	Oct. 24.—Ditto,	...	2 3 3
	...	...	Nov. 30.—Macfarlane and Erskine, ditto	...	0 12 11
By Sale of "Spiders of Dorset"	£ s. d.	119 16 6	1895.	...	4 12 6
" " Vol. NV. and others	2 10 0		Jan. 2.—Mintern Bros., Engraving Plates	...	16 10 0
" " Phalangidea	12 2 6		" —Ditto	...	2 0 0
" " Chernetidea	0 5 0		Feb. 15.—Werner and Winter, Engraving	...	16 2 0
	0 3 0	15 0 6	" 21.—Subscription to Footpath Society	...	0 10 6
			Mar. 9.—Dulan and Co., Vols. I.—IX., and Postage	...	2 3 0
			May 8.—Treasurer, Stamps to date	...	1 15 6
			" —Sime and Co., on account for Vol. XV., and	...	
			Advertising, &c., &c.	...	101 0 0
			Balance in hand..	...	0 15 8
					£151 16 4

Dorset Natural History and Antiquarian Field Club.

Dr. HON. SECRETARY'S ACCOUNT from May 1st, 1894, to April 30th, 1895. Cr.

RECEIPTS.		PAYMENTS.	
	£ s. d.		£ s. d.
1893. Balance from last Account ...	0 5 7	Voss, for Meetings, May 23rd, 1894, Dec. 10th, 1894, and Feb. 19th, 1895 ...	0 15 0
By Balance on Incidental Expenses at Meetings at Bournemouth, Dorchester, Bridelhead, and Raunston ...	9 2 0	Hon. Sec., Stamps, Postcards, &c. ...	4 8 11
	£9 7 7	* Balance in hand ...	4 3 8
			£9 7 7

* £5 paid over to Hon. Treas. May 20th, 1895.

Dr. GENERAL STATEMENT for 1894-5. Cr.

RECEIPTS.		PAYMENTS.	
	£ s. d.		£ s. d.
By ARREARS of Subscriptions:—		By Balance due to Sime and Co. for Vol. XV., &c., &c. ...	25 15 6
For 5 Years (1890-94 inclusive), 2 Members ...	5 0 0		
" 4 Years (1891-94 inclusive), 2 Members ...	4 0 0		
" 3 Years (1892-94 inclusive), 5 Members ...	7 10 0		
" 2 Years (None)	18 0 0		
" 1 Year (1894), 36 Members	34 10 0		
.. Current Year (1895), 245 Members	122 10 0	By Balance in favour of Club ...	132 0 2
By Balance in hand May 2th, 1895 ...	0 15 8		£157 15 8
	£157 15 8		



DORSET NATURAL HISTORY & ANTIQUARIAN FIELD CLUB.

WIMBORNE MEETING.

Held Tuesday, Sept. 10th, 1895.

The Presentation to the President.

[It is felt that the above is of such interest and importance to the members of the Club that, though the subject would in the ordinary course have come under the head of the Wimborne Meeting in the next volume, an account of it ought to be given in the present one. The following extract is reprinted from the *Dorset County Chronicle* of Sept. 12th, 1895.]

Passing Horton Tower, the party continued their drive to Gaunt's House, the residence of Sir Richard Glyn, Bart., who had very kindly invited the Club to luncheon. An elegant repast had been spread, and to it the antiquarians with their appetites sharpened by their long drive did the amplest justice. After luncheon the party moved out on the lawn, where the most important and interesting ceremony of the day forthwith took place—namely, the presentation to the President in recognition of 20 years of invaluable service to the Club of which he has been the heart and soul. The party gathered upon the turf-carpeted terrace, and upon the lawn below was placed a table bearing the beautiful article chosen as the present. It was a magnificent flower bowl of solid silver, inlaid with gilt, and embossed without with beautiful ornamentation of flowers and leafage in Renaissance style. The bowl was surmounted with a silver reticulated cover for supporting flowers in their places. On one side of the bowl

were engraved the President's armorial bearings, and on the other side the following dedicatory inscription :—

“ Presented to John Clavell Mansel-Pleydell, Esq.,
J.P., F.G.S., F.L.S., by the Members of the Dorset
Natural History and Antiquarian Field Club in token
of their esteem and gratitude for the great benefits
which he has conferred upon it both by his able
contributions to the ‘Proceedings’ and by his unstinted
expenditure of time, money, and personal trouble
during the 20 years of his presidency, from its inaugura-
tion on March 26th, 1875. September 10th, 1895.”

The bowl, which is of exquisite design and extremely handsome appearance, was generously supplied at cost price by Mr. John Vincent, silversmith, of St. Mary Street, Weymouth. Beside the table stood Lord Eustace Cecil, Mr. Secretary Richardson, Sir Richard Glyn, and Mr. H. J. Moule, together with the President. It was undeniably unfortunate that the only shower of rain which marred the success of the day fell at this inopportune time. It should be observed that a flower vase was chosen as a delicate reference to the President's latest publication of importance, “The Flora of Dorset.”

Lord Eustace Cecil, addressing the company, said : I have been especially requested by Sir Talbot Daker and the members of the Club to undertake a most agreeable and flattering duty, and that is to present to our President a testimonial betokening the good service that he has performed in presiding over this Club for the last 20 years. (Hear, hear.) For obvious reasons there is an unwritten rule of the Club that we should not make very long speeches ; and as “ brevity is the soul of wit ” I am certainly not one of those who wish to depart from that rule to-day, more especially considering the weather, which I was not consulted about—(laughter)—and which appears to be more threatening than I had expected. But with the full desire and intention of confining my observations within as small a compass as I can, I think I am bound to say one or two words with regard to the Club itself, if only to accentuate the great debt of gratitude which the Club feels

towards our much-revered and beloved President. (Hear, hear, and applause.) He has been President for the last 20 years, and I hope that he may be President for any number of years more; and I am sure that that is a sentiment which you all feel and heartily re-echo. (Loud applause.) This Club was founded some 20 years ago by the exertions of our worthy President and sundry other gentlemen—Canon Bingham, Mr. Wood, Professor Buckman, and others who have since joined the majority. It was founded with these two ideas—the advancement of science in every particular and the bringing together from time to time of all classes in the county—thus combining business with pleasure in the most agreeable way and advancing the knowledge of various sciences, and especially of the geography of the county. How admirably these duties have been performed I may point out to you by showing that there are now at least 15 volumes recording the proceedings of the Club in archæology and every branch of natural history. But there is one thing which these books have not recorded, and that is the time, trouble, and labour, and the unwearying tact and politeness that have been shown to us members of the Club by the President and officers during that long period of years; and I wish to take this opportunity as a very humble member of the Club of saying how much we all appreciate their labour of love. (Applause.) If I had time I might descant upon the merits of the numerous officers of the Club, who, with our President, have added so much to our information and happiness; but it is upon the merits of our worthy President only that I have to descant this afternoon. In Dorset we all know him as an active magistrate, as a kindly neighbour, as a good landlord, as a thorough, sterling Englishman—(hear, hear)—and, in a word, as a jolly good fellow all round. (Applause.) But especially to a scientific body there is one more thing which I think I must say in his praise. He has been, as far as this county is concerned, the father of natural history and science for the last 20 years, and I hope that he may long continue as such. (Hear, hear.) If anybody doubt my word he has only to look at the

1.

wonderful number of papers that have been contributed by him to those 15 volumes which I have spoken about, and which deal with almost every subject under the sun, from the biography of his ancestor and our great Dorsetshire Prime Minister, Cardinal Morton, from *Elephas meridionalis*, *Bos primigenius*, to the rarest plants in the Abbotsbury Gardens—a wide range of matters “from China to Peru,” but in all our President has shown activity, industry, and research. Other counties may boast of men who are far more famed in industry and scientific research; but there is no county in England which can point to so valuable, so respected, and so much loved an individual as the President of our Society. (Loud applause.) Considering what the weather is becoming (the rain was falling briskly) I will curtail the remarks which I had to make, and now simply, as representing this Club, present you, Mr. Mansel-Pleydell, with the vase before us. I know that it represents quantity as well as quality—(laughter)—quality in the design, the workmanship, and the inscription, and quantity in the number of subscribers—185 or more—who have contributed to this beautiful work of art. Long may you, Mr. Mansel-Pleydell, live to possess it—(applause)—long may you preside over this Club, and long may this vase be passed on from generation to generation as a memento on the one side of social and scientific duties well performed, and on the other side of affectionate respect and regard. (Loud applause.)

Mr. J. C. Mansel-Pleydell, who was evidently deeply moved, said in acknowledgment: I cannot adequately express my thanks to you for the surprise of to-day. I only heard a few days ago of your kind intention, but I had no idea that it was to culminate in a present of such intrinsic value as the one which now stands before me. Most heartily do I thank you, Lord Eustace Cecil, for your kind and flattering remarks on the way in which I have fulfilled the duties of President of the Dorset Natural History and Antiquarian Field Club during the whole period of its existence. For 20 consecutive years you have placed me in that honoured seat, and I tender my sincere thanks to every

subscriber present and absent for this substantial proof of your friendship and esteem, and for the kind appreciation of my endeavours to maintain the scientific character and interests of the Club. (Applause.) In that task I have been aided by my able coadjutors, Mr. O. P. Cambridge and Mr. Richardson, and their predecessors in office, one of whom, Mr. Morton Stuart, I am glad to see with us to-day. Our scientific standard has been maintained, and our work appreciated in high places, for example, by Sir Richard Owen and Mr. J. W. Hulke, whose names are inscribed on the death-roll of the Pantheon of eminent men, with several others now living, of whom I may mention Mr. Jukes-Browne, Mr. Clement Reid, and Mr. Starkie Gardner, who are now engaged in an examination of the Cretaceous, Tertiary, and Superficial Beds of this county, whose contributions have added a lustre to our published volumes. The efficient and original work of our entomologists, and the illustrations of Mr. Richardson's papers by the artistic hand of Mrs. Richardson, have been the means of adding to the list of members the names of Lord Walsingham and Mr. F. DuCane Godman, both Fellows of the Royal Society. The archaeologists of the Club have been long stimulated by the labours of General Pitt-Rivers among the British and Romano-British earthworks at Rushmore and the neighbourhood, the results of which are systematically and instructively exhibited in his Farnham Museum. I think we may claim credit to ourselves that we are fulfilling the career the founders of the Club assigned to us at its commencement. As the President, I feel some pride in this, which could not have been attained without the hearty co-operation of the members. In conclusion, let me thank you most heartily, in the name of Mrs. Mansel-Pleydell and myself, for this fresh proof of your esteem. I need not say how much it will be esteemed by both of us. It will descend as one of our heirlooms to our successors, who, I hope, will derive the enjoyment that I have had, and which has contributed so materially to the happiness of my life, and leaves no traces of regret. The study of Nature reveals the directing hand of a beneficent Creator, adapting

His creatures to the environments His prescience has assigned to them. And the study of the progress of civilization from the prehistoric earthworks and tumuli of the county, to the written records in national and local depositories, as well as the ecclesiastical and domestic architecture of the Middle Ages, is most fascinating and instructive. (Loud applause.)

Lord Eustace Cecil added that he had been requested to express the regret of four gentlemen at being unavoidably absent that day—namely, Colonel G. P. Mansel (the President's brother), who was in Wales, Lord Stalbridge, General Pitt-Rivers, Canon Ravenhill, and Sir H. Peto. He then called upon Mr. Moule to read the inscription on the bowl, which he said he believed to be the joint composition of Mr. Moule and Mr. Richardson.

Mr. Moule read the inscription aloud, and this was the signal for another outburst of applause. The bowl, it should be observed, was fitted into a polished oak case and was accompanied by a handsome volume, containing the names of the subscribers. On the call of Lord Eustace, cheers were then given for the President and Mrs. Mansel-Pleydell. Three cheers were also given, on the call of the Rev. J. Miller, for Sir Richard and Lady Glyn for their very hospitable welcome of the Club.





Anniversary Address of the President.



MY first duty whilst delivering the Annual Address you require from your President is to recall to your memory the members who, removed by death from amongst us, are deserving of special notice, and acquired in life an eminent position in the halls of science. I have to mention two names on this melancholy list, that of Dr. T. W. Wake Smart, and of Mr. John Whittaker Hulke, F.R.S., the former died at an advanced age at Cranborne last winter. He is the last of the little band of men who, in the early part of this century, combined to develop the archæological and antiquarian history of the county. Dr. Smart contributed several papers to our National Archæological Societies, the last of which was read at a meeting of the Royal Archæological Institute in Salisbury on August, 1887, on "Some Celtic and Roman Antiquities in the North-east of Dorset." He contributed six important papers at the meetings of the Club, which are published in the "Proceedings." Mr. C. Warne's valuable work on Ancient Dorset commences with 23 folio pages by his accomplished pen, entitled "The Introduction to the Ethnology of Dorset," besides which he is the author of other archæological treatises in connection with the county. Mr. Hulke was President of the Royal College of Surgeons of England and Foreign Secretary of the Geological Society at the date of his death. Although not a member of this Club he contributed materially to the palæontology of the county, especially relating to the

Kimmeridge clay saurians of Kimmeridge and the neighbourhood. Mr. Hulke took a lively interest in the palæontological work of the Club, and assisted me in the monographs on *Steneosaurus Stephani* and *Steneosaurus Purbeckensis* in the first and tenth volumes of the "Proceedings." A few days before his sudden and lamented death I was corresponding with him on some footmarks of a large reptile on some slabs of Purbeck stone from Swanage. Geologists and men of science both at home and abroad deeply deplore his loss. Besides being an accomplished geologist and palæontologist he was a first-rate botanist. During the night of February 7th, a bitter cold night, he was summoned to operate on an important case, which his sense of duty compelled him to obey, and he did not return until 3.30 a.m. On the following day he was seized with an attack of bronchitis, but attended the wards of the hospital until Monday, when pneumonia supervened, and he died on Tuesday, the 19th.

In my Anniversary Address of 1893 I reviewed the earth's plant-life from the earliest times to the commencement of the Glacial age. I will now endeavour to complete the review which, through unforeseen circumstances, I was unable to do last year. It will be remembered I stated that the climate of Europe became gradually cooler from the beginning of the Pliocene and the end of the Forest Bed period, when vigorous Glacial conditions set in. Although palm and other plant-forms characteristic of a warm climate had disappeared, the rich and abundant Pliocene vegetation is represented in the Forest Bed by many identical and nearly-allied species. Count Saporta speaks of the great forests which then covered vast areas, occupying the plains, borders of rivers, and extending up the valleys even to the crests of the mountains, and which had very little change of character, so equable was the temperature of that period. Many Miocene trees passed away during the Pliocene period, while others survived, and are now living in more eastern and southern regions, and some are still represented in Europe by identical or closely-allied species. Thus the flora of the Pliocene age is connected with the

past and present plant-life in Europe. The successive invasions of northern Europe by vast *mers de glace* and perennial snow-fields modified and materially affected the fauna and flora. The Mediterranean was then a formidable hindrance to their retreat southwards and contributed to the extinction of many which might otherwise have crossed into Africa. During some of the stages of the Pleistocene period England formed part of the Continent. There are traces of extensive Glacial action of this period in the mountainous districts of England by the rounded contours of the mountains over which the ice-sheet passed, which can be equally traced in the valleys by the striated and polished rocks and morain deposits. The evidence of ice-action in the low grounds is not so apparent, as the accumulations are of a different character to those of the uplands.

The superficial accumulations on the low-lying districts of eastern England at Cromer, Norfolk, and the neighbourhood, are well exposed along the coasts and contain remains of animals and plants which peopled that part of the country during this Arctic period, when northern forms only appear. The Marine Molluscan fauna of the succeeding Chillingford and Weybourne crags is thoroughly Arctic. The boulder-clay of Cromer is succeeded by Arctic freshwater-beds containing Arctic plants, *Salix polaris*, *Betula nana*, freshwater shells; they underlie the Forest Bed series, which is separated by intervening estuarine beds containing *Mytilus edulis* and *Littorina littorea*. In the upper bed are found *Bythinica tentaculata*, *Valvata piscinalis*, and *Pisidium amnicum*, all now living in England. Most of the animals which were not able to survive the cold of the Forest Bed age were highly specialised herbivores, which died out through the change of herbage or an insufficiency of food. The survivors were carnivorous and omnivorous, and could accommodate themselves to changes of diet. The marine molluscan fauna points to a gradual change of climate.

During the time of extreme glaciation the inland ice advanced no farther than the Thames. A great part of Southern Europe was then buried in snow during the winter, and in the summer

the low-grounds were inundated with melting snow. Doubtless owing to their proximity to the North Sea, glaciation was more severely felt in Leicestershire, Cambridgeshire, Bedfordshire, Herefordshire, Suffolk, and Norfolk than in the counties farther west. Here we meet with till, or boulder-clay, formed by the grinding power of ice over the surface of the underlying rocks. Sometimes it is intercalated with beds of silt, mud, sand, and fine-gravel; tusks of mammoth, antlers of reindeer, fragments of oak and other trees, with crushed and striated sea-shells occur in the till, which is known at Cromer as the great Chalk boulder-clays. The till lying upon the Chalk, Kimmeridge clay, and Oxford clay partakes of the physical characters of each respectively. Upon the chalk it has a white hue; on the clays it is darker on the Kimmeridge clay than on the Oxford clay. The light blue upper Lias clay of Leicestershire gives it a bluish hue. Mr. Clement Reid considers that the lowest beds of the till are due to a *mer de glace*, which invaded the land from the north-east.

Before England north of the Thames was covered with the ice-sheet the climate was adapted for the support of a considerable mammalian fauna, of which many of the great pachyderms passed southward on the advance of the cold, and before the formation of the till those that remained behind were to a great extent exterminated. These large numbers, including 15 species of deer, three species of elephants, and other large forms, make it evident that Great Britain was at that time connected with the Continent. The flora and fauna of the Forest Bed, omitting the large mammals and the extinct forms, resemble that of the "Broad District" in Norfolk of the present day.

The mammoth survived longer than the other species of elephants owing possibly to the adaptation of the molar-teeth for masticating the hard fibrous vegetation of Arctic regions; the plates are more numerous than those of *E. meridionalis* and *E. antiquus*, which are more adapted for crushing than grinding.

The list of the mammalian fauna of the Forest Bed is very incomplete owing to insufficient evidence. This is not the case,

however, with the freshwater mollusca, our knowledge of which approaches completeness, and of which two-thirds are now living in Britain. It is remarkable that while the Forest Bed yields a distinctly southern land-fauna, which Mr. Clement Reid thinks is due less to climatal changes than to an elevation of the land when connection with the southern seas was cut off and cold currents from the north were introduced. Migration of marine species from north to south was then impossible and *vice versa*, but the land and freshwater-fauna would not be so affected, and could pass on as before without interruption, becoming gradually acclimatised. Long before the intense cold had set in, the southern plants would be the first to disappear, followed by the temperate forms; the Alpine plants would advance from the north, and descending from the mountains, of which they had taken possession during the interglacial periods, would push their way southward, as *Mulgedium alpinum*, *Gnaphalium norvegicum*, *Azalea procumbens*, *Arctostaphylos alpinus*, *Salix reticulata*, *S. herbacea*, *Juncus triglumis*, and *Woodsia hyperborea*.

The brick-earth of Fisherton, near Salisbury, is an equivalent with many of the superficial accumulations in the south of England to the morainic deposits of the north, containing an Arctic fauna and flora, now found in high latitudes. As far south as Bovey Tracey there is a deposit resembling the Coombe-rock, containing the *Arctic birch*, *Bearberry*, and some northern willows. Mr. Clement Reid calculates that the mean temperature of England at that time was considerably below freezing point, and with rocks unprotected by snow, would be permanently frozen to a depth of several feet, and as long as those conditions lasted the springs would fail, as the surface-water would be unable to penetrate through the frozen interval. The rainfall would run off from the slopes and remove the surface rubble which had been loosened by the splitting action of the frost. This denuding process seems to have been enormous and rapid at that period, and it is doubtful whether any of our superficial deposits in Dorset are due to true glacial action. Southern England was then clothed and peopled with an Arctic fauna and

flora. Mr. Clement Reid found erratics of granite, diorite, and other foreign rocks at Pagham, on the Sussex coast, associated with a Pleistocene deposit of coarse gravel, full of basins or pits, resting on a surface of Eocene clay, some of which contained an erratic block with the appearance of having been pressed down by some superincumbent weight. Erratics conveyed by drift-ice after grounding on the ancient surface would be pressed down deeper and deeper into the clay as the tides rose and fell. Mr. Clement Reid thinks the wide-spread deposits of the Thames Valley were not laid down by fluvial action, but under Arctic conditions, when frozen-soil and gravels were laid down, and spread over the gently sloping plains. In the contemporary Coombe-rock, which is of the same age, there is an absence of aquatic animals and scarcely any fossils, except of land mammals. In conclusion it appears that there is sufficient evidence of two distinct periods of Arctic cold in the south and south-east of England; during the earlier one all Britain north of the Thames was buried under ice, succeeded by a mild period, during which a characteristic mammalian and molluscan Pleistocene fauna prevailed over this part of the country. Afterwards an increase of cold brought about a second glaciation north of the Wash, while the rain falling on the frozen soil of the southern areas brought about the formation of the extensive sheets of gravel.

The organic remains in the Pleistocene beds lead to the conclusion that the climate must have alternated from cold to temperate more than once, and that at one time it was extremely genial and equable. Plants are found in them which do not now live together; some are restricted to hilly and mountainous regions, some to the plains and valleys, others have definitely migrated far to the south. The testimony afforded by plants is confirmed by that of the land and freshwater mollusca. Again, the evidence supplied by river and flood-deposits are in keeping with that of the organic remains with which they are associated, and point to a long period of repose when the rivers flowed peacefully, unaccompanied with torrential floods, and when deposits of gravel and sand were laid down. On the other hand there were periods

when coarse-gravels and ice-floated erratics show periods of turbulent waters and river-ice, and melting of interbedded masses of frozen snow, while the thick and widely-spread loams show periods of floods and inundations. The last glacial epoch was succeeded by a temperate genial climate, when the great Germanic flora spread itself over all the temperate regions of Europe. The large herbivores, Elephant, Rhinoceros, Hippopotamus, and the carnivores, which had been driven southward, never returned to Europe, owing probably to the submergence of the land which had previously connected it with Africa; but no such obstacle interfered with the free migration of marine life.

In conclusion palæontological and physical evidences combine to show that preglacial and glacial conditions prevailed during the Pleistocene period. The latter commenced when the Pliocene age was coming to a close, and ended with the last epoch of the Ice age. Since then our climate has passed gradually from an Arctic to a temperate one, and although it has never been so warm as in the last interglacial stage, it has been more genial than that of the present day.

ARGON AND HELIUM.

The year 1894 will be remembered for the discovery of a hitherto unknown element of the atmosphere through the joint researches of Lord Rayleigh and Professor W. Ramsay. This newly-discovered gas, *argon*, is distinct from nitrogen, with which it is associated. Lord Rayleigh in determining the densities of the more permanent gases found that nitrogen if obtained from chemical compounds is about one-half per cent. lighter than if extracted from the atmosphere. Professor Ramsay, with the concurrence of Lord Rayleigh, investigated the matter by chemical methods, and obtained results similar to those obtained by Lord Rayleigh, but by quite a different treatment. There is now no doubt that the atmosphere contains an element which, although existing in enormous quantities, has hitherto escaped discovery. Argon is soluble in water, and twice as much of it can be procured from rainwater as from the air.

Previous experiments of Cavendish pointed to the presence in the air of some substance other than gases with which we are familiar. Attention was recalled to the fact that the density of nitrogen obtained from atmospheric air differed by about one-half per cent. from the density of nitrogen obtained from other sources. It was found that if air, with an excess of oxygen, be subjected to electric sparks, in the excess of oxygen there remains a residuum which is neither oxygen nor nitrogen, as can be seen by its spectrum. The newly discovered element constitutes nearly one per cent. of the atmosphere, and the spectrum gives a blue line more lustrous than the corresponding blue line of the nitrogen.

The discovery of argon opens up a new field of investigation, the extent of which cannot be conjectured, one from which important results may be anticipated. Few subjects have created a more wide-spread interest, not only in scientific circles, but among the general public.

When Professor Ramsay was in search of argon he isolated another gas from cleveite, a newly-discovered mineral, and a variety of uranite composed of two elements, of which helium is one. This gas was discovered for the first time by means of the spectroscope during the eclipse of the sun in 1868, and its presence in a terrestrial rock proves a community of matter, and by inference of origin in the earth and sun. The spectrum gives a bright yellow double line.

NANSEN.

The expedition under Dr. Nansen, the intrepid traveller who successfully crossed Greenland with his four companions in the year to the north of Siberia, with all its uncertainties and dangers, has the advantage of a commander of high scientific attainments, considerable Arctic experience, and the gift of inspiring confidence amongst his followers.

His idea is that as all previous expeditions have been stopped by the ice drifting south, this would not be the case where the ice drifted in the opposite direction. Mr. Clement Markham, F.R.S., the president of the Royal Geographical Society, considers

it probable that the "Fram," the vessel which carries the expedition, may be drifted in the direction that Nansen anticipates, and that it may be looked upon almost as a certainty that there is an ice-laden channel unobstructed by extensive land coasts.

Captain Fielder's paper on "Current Polar Expeditions," at the last meeting of the British Association, discussed among the Arctic expeditions of the year the prospects of the Nansen expedition, founding his belief on the general correctness of Nansen's views as to the Polar currents, partly on the movements of the East Greenland ice, but chiefly on the stranding of the drift-wood along the coast of Grennell Land and Cape Britannia, but Captain Fielder does not think that these are sufficient to ensure the success of the "Fram," or to make her voyage anything but daring and hazardous in the extreme. However, he expressed great confidence that whatever happens to the vessel, her commander's boldness and resources will bring the expedition safely back.

RUSHMORE.

General Pitt-Rivers has completed, during the past year, the examination of Worbarrow, in Handley parish, and made other valuable additions to the history of ancient Britain, increasing knowledge of the habits and customs of the inhabitants of this part of the county, which would otherwise have been an untold tale. This has been accomplished after ten years or more of untiring energy, personal toil, supervision, and engineering skill, and a large expenditure of money, to which his three 4to. volumes on his excavations at Rushmore and the neighbourhood fully testify.

SILCHESTER.

The excavations at Silchester by the Society of Antiquaries, which have now been carried on for four years, have had successful results during the past year, by which important and interesting additions have been made to the knowledge of urban life during the Roman occupation. A thorough examination of 6½ acres was made in 1894. The only architectural remains of importance was

the capital and base of a Doric column, a large and fine slab of Purbeck marble, and the usual objects of glass, bone, and fragments of pottery, a gold ring, and a black earthenware vessel containing 253 silver denarii, of various dates ranging from Mare Antony to Septimus Severus, a period of about 250 years. The most important discovery is that of a number of furnaces of various sizes and shapes, found among a series of rectangular enclosures or buildings with a large number of wells. One of these furnaces corresponds exactly with a dyeing furnace at Pompeii.

GLASTONBURY.

The excavations of the lake-village near Glastonbury were reopened last year under the superintendence of Mr. A. Bulleid in the early part of May, and before the end of the year, 403 feet have been examined within the palisaded boundary and a large area outside, including nine dwelling mounds in which were flint implements, a saw and arrow-head, bronze fibulæ, finger-rings and pins, iron reaping-hooks, and an unfinished sword, bone-needles and combs, a dice differing in shape from the modern form, with the numbers 3, 4, 5, and 6, several pieces of woodwork, some finely decorated, with incised patterns, a segment of the axle of a wheel with the bases of two spokes attached; from its lightness of structure, Mr. Bulleid thinks it may have belonged to a potter's or wood-turner's lathe; part of another boat was recovered, comprising the half of one end. There was also the usual proportion of clay sling-stones, spindle-whorls, whetstones, hand and wheel-made pottery, objects of Kimmeridge shale.

CHALLENGER EXPEDITION.

The last two volumes of the scientific results of the voyage of H.M.S. Challenger during the year 1872-1876, one of the greatest enterprises of the kind ever undertaken by this or any other country, have just been published. The special object of the expedition was the scientific explanation of the physical, chemical, geological, biological, botanical, and marine conditions of the ocean

basins. The expedition was out $3\frac{1}{2}$ years, during which it sounded and probed the ocean to its lowest depths, analysed the sea-water and collected the forms of life from the surface downwards. In this way the Atlantic, Pacific, and Indian Oceans to the borders of the Antarctic were thoroughly searched and examined by the dredge and other collecting appliances, which brought up the denizens of the lowest sea-bottom. A complete knowledge of the contours of the ocean bed is now fairly well ascertained. The principal currents and under-currents are mapped, indicating the circulation of the water, by which a fair idea of the many types and groups of life is ascertained. Dr. Murray, the editor of these volumes, in the introduction, gives a history of our knowledge of the oceans from the earliest to the present day. He suggests that the cooling of the earth at the Poles began in Mesozoic times, when cold currents invading these high latitude areas gradually reached the lowest depths, carrying with them a more abundant supply of oxygen; life in the seas deeper than the *Mud-line* thus became possible. The *Mud-line* is not far from 100 fathoms deep, differing from five to twenty in some parts and 100 fathoms or more in others, and constitutes the great feeding ground of most of the denizens of the seas.

WILD BIRDS PROTECTION ACT, 1894.

In my last year's address I touched upon the lamentable destruction of animals, *ferre natureæ*, otherwise than through the wear and tear of natural causes, through the wanton action of man either for greed of gain, or to satisfy the craving desire of killing and destroying. An Amendment Act to the Wild Birds Protection Act, 1880, was passed last year, which prohibits the taking and destroying eggs; a most acceptable piece of legislation for which every naturalist is grateful, with the exception, perhaps, of the oologist. The previous Act, forbidding the destruction of young birds, has to a great extent been evaded, making that of 1894 necessary. Under this Act the County Councils are empowered to ask the Secretary of State not only to enforce the prohibi-

tion of taking and destroying the eggs of wild birds, but to ask for the protection of defined areas. This has been done by the County Council of this county, who adopted my suggestion that the Act shall apply from the 1st of March to the 1st of August of each year, and that the scheduled districts shall include the waste-lands, sand-dunes, marshes, and lakes, which intervene between the coast or foreshore, and the ditches, fences, and embankments which protect cultivated and private grounds. This is important, and will prove a powerful means for the protection of many a breeding station. The Chesil Beach is a favourite resort for many species of sea and other birds. A regular trade of eggs taken from this breeding ground is carried on, and a ready market at hand among the visitors and excursionists who visit Portland and Weymouth. The Poole estuary is also a breeding resort for the heron, curlew, sheldrake, oyster-catcher, ring-plover, black-headed-gull, pochard, &c. Morden Park lake and Decoy with a considerable encircling area is the only inland part of the county which is scheduled.

Not long since the *Spectator* gave a glowing account of Brading Harbour, in the Isle of Wight, which has recently been re-claimed from an inland estuary into a breeding-ground for shore and land birds. Here their young are reared in safety. Redshanks, wild ducks, teals, swans, sandpipers, ring-plovers, terns, wheatears, peewits, nightjars, sedge warblers, and sea-gulls are now visiting this attractive spot. I may here mention that a skin of the extinct great auk was sold last month for £380 to the Edinburgh Museum, and an egg (damaged) for £189 since the beginning of the year. There are only 24 in Great Britain, eleven of which are in public museums, the remaining 13 are in private hands.

METEOROLOGICAL.

The frost of the present year, which commenced on January 22nd and continued to February 25th without interruption with the exception of one or two slight thaws in the day time, is remarkable, occurring as it did at so late a period of the winter. At

Greenwich the mean temperature for 28 days was about 27° F., and the mean of the lowest night temperatures 21° F., or 11° of frost. On nine consecutive nights a minimum of 20° F. was recorded. None of the frosts of the present century had a lower mean night-reading than that of this year.

In 1813-14 the frost lasted from December 26th to February 5th—a period of 42 days, when a fair was held on the frozen Thames for a week. The mean temperature was 27.3° F., and the lowest 8° F. In 1838 a frost lasted 50 days, from January 5th to February 23rd, with a mean temperature of 28.9° F., and a minimum of 4° F. below zero. Severe as was the frost of this year the most remarkable feature of it was the long duration of the intense cold. Mr. G. J. Symons, F.R.S., says "The records of last February are by far the lowest during the last 36 years, from 1859 to 1875, with the two exceptions of December 5th, 1860, and of January 5th, 1867, when the thermometer fell to 6.7° F.; on February 8th of the present year it was 7.3° F."

At Camden Town the lowest temperature of the earth one foot below the surface was 30.9° F. on February 18th. The intense cold of the 13th to the 24th was due to the lower temperature and the almost entire absence of snow, a layer of which six inches deep keeps the earth several degrees warmer than without it. This may be the reason why the root-crops, which had not been previously housed, or covered over, suffered so disastrously. The earth's mean temperature at Shaftesbury in February, as recorded in the *Meteorological Magazine* of April, was 31.9° F., minimum 30.8° F.

In December there were two remarkable barometric oscillations in the South of England. At Whateombe the barograph trace became greatly disturbed about midday on the 21st, accompanied by a rapid depression, which continued for 24 hours, during which time the barometer fell from 30.6° to 29.6° , the wind south-west, strong wind, and clear sky. These oscillations are probably the results of gigantic atmospheric waves of all sizes—from a ripple to gigantic billows—brought about by friction in the aerial strata of different densities and velocities.

BLASHENWELL.

The discovery of plant remains in the tufaceous bed of Blashenwell, near Corfe Castle, is an addition of some importance to the geology of Dorset. The bed has already been described by a paper read before the society in the year 1886 with reference to the animal remains found in it, with evidence of human occupation, such as flint-implements and marine mollusca, similar to those frequently found in prehistoric settlements. An interment in the tufa was disclosed last year with no clue as to its probable date. I am still inclined to consider the settlement to be neolithic, as, notwithstanding the absence of pottery, the fauna points to that period. When Mr. Strahan, F.G.S., of the Government Survey, was examining the strata of this part of Dorset he found a lower section of the deposit containing plant-remains of several species, all now living in the neighbourhood. The basement-bed further east rests on the Weald clay, in which there are also plant-remains and among them some agglomerations, which may be only tufaceous nodules assuming the form of sphagnum.

FOOTPRINTS OF A LARGE DINOSAUR OR LAND REPTILE.

The County Museum acquired last year a valuable addition to its palæontographical collection, a gift by the trustees of the Corfe Castle Museum of two large blocks of Purbeck stone bearing on their surface the footprints of a gigantic animal, probably of an *iguanodon*. The evidence of Dinosaurs is very scanty on the Purbeck series, although in the succeeding Wealden beds they have been found in Purbeck, and frequently in the Isle of Wight. As I hope to read a paper on this interesting fossil in the course of the year, I shall not say more of it at present.





BASE OF OLD CROSS. STRATTON CHURCH YARD



Stratton Church and Village Cross.

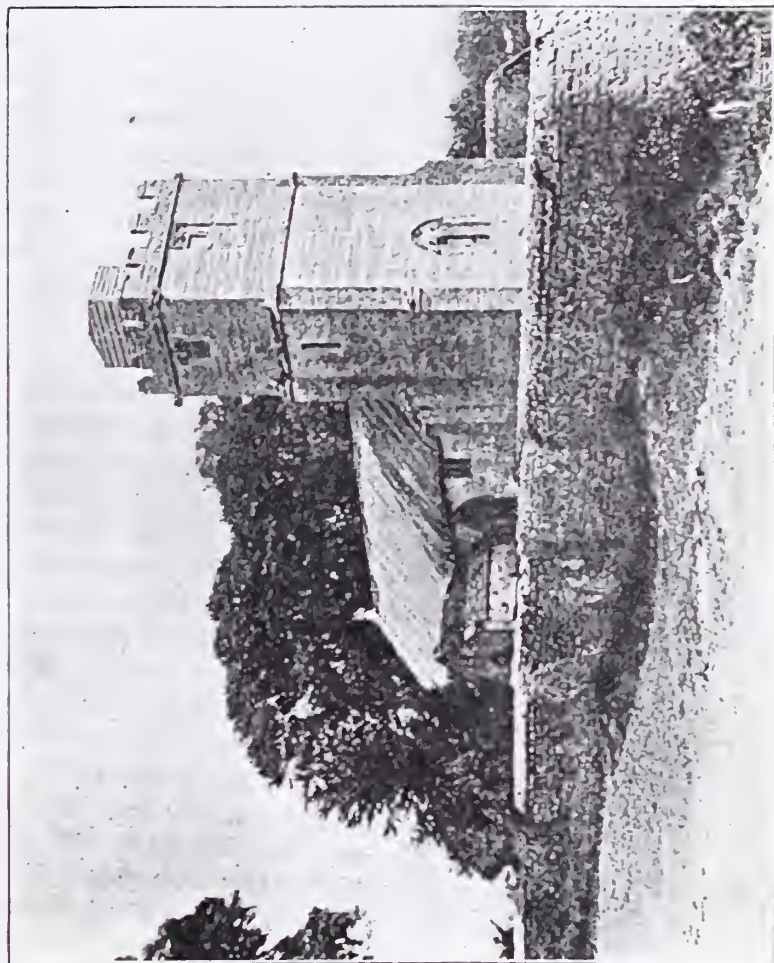
By A. POPE, Esq.



BEFORE we enter the church I wish to say a few words upon, and to have your opinion, as to the origin and antiquity of this venerable pile of stones, which may at one time have formed the base of the village cross of Stratton. The shaft which was doubtless also of stone has, it will be observed, been long since removed or destroyed. It is open to question whether this cross now stands in its original position.

That the base has been removed from some other place, probably in the village or rebuilt upon its original site, there can be little doubt, as evinced by stones of different kind, shape, and workmanship from the original (which it will be observed is of Ham Hill and plain perpendicular in character) having been built into it, whilst those stones so introduced are of a local kind and much more roughly hewn. If you will be so good as to look under the nosing or curb of the top step you will find a bold fluted moulding on those stones which originally formed part of this ancient monument, but that such moulding is not carried through the stones which were used in the rebuilding or restoration. Please also note the original position of the shaft where it was inserted in the base. The age of the work may be somewhat open to doubt, but that it stood here prior to Dean Chandler's Visitation,

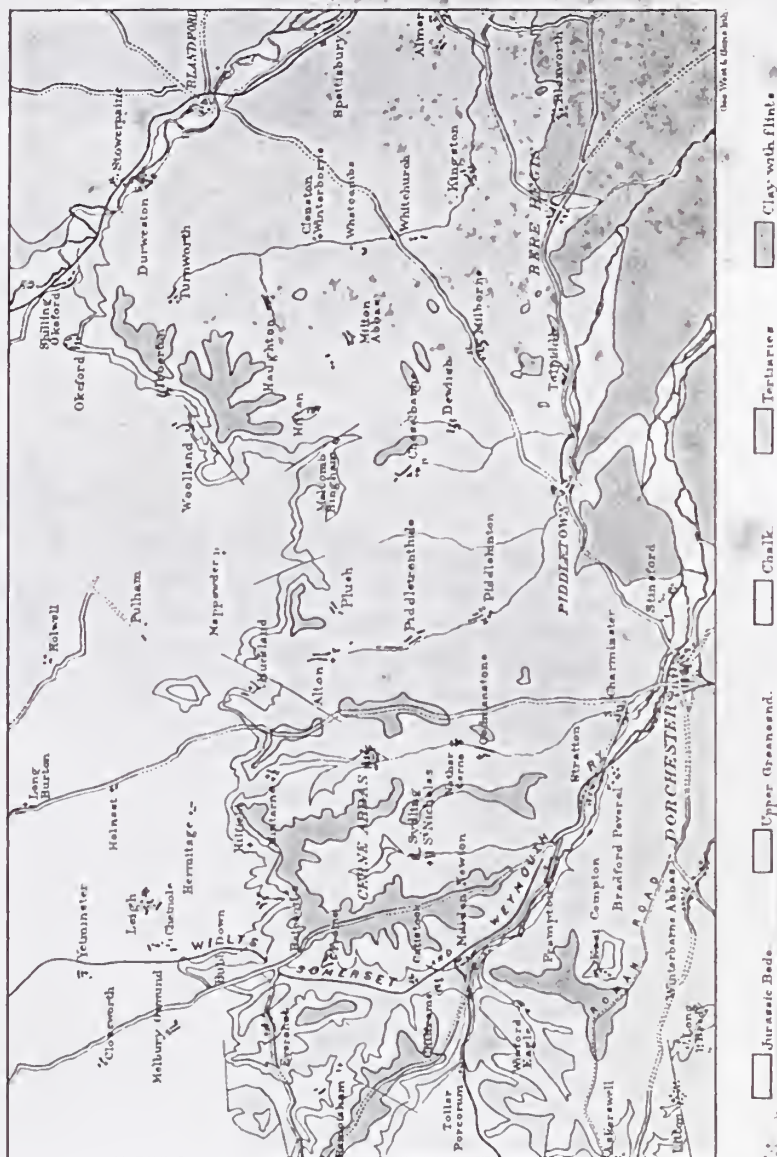
1405, there can be no question, and it would probably be contemporaneous with or prior to the chapel then standing. On the whole I am inclined to think that this present structure, which may have replaced a cross possibly of wood of more ancient date, would have been erected about the same date as the Flamboyant windows, also of Ham Hill stone, on the south side of the late church and rebuilt in their original positions into the present edifice. Many of these venerable stone churchyard crosses date prior to the Norman Conquest, when the English people were gradually being converted from Pagan worship and were learning the blessings of Christianity. The Pagan Saxons worshipped stone pillars, so, in order to wean them from their ignorant superstition, Christian Missionaries, such as St. Wilfred, erected stone crosses and carved upon them the figures of the Saviour and His Apostles, displaying before the eyes of their hearers the story of the Cross written in stone. In these early days, when there were as yet no parish churches, the Christian services were held in the open air at some spot which convenience and shelter and perhaps safety might dictate, and a cross was set up to mark the spot, and that cross consecrated the place for the time a church, and eventually perhaps a church or chapel would be built at or near the spot. In this case, if we accept the theory that this cross stands in its original position, or rather in the place of a more ancient one, it would seem that the original church or chapel was pitched close to the church-place or worshipping-cross of the district. Another theory would be that this cross was the ancient village market or "cheeping" cross from the Anglo-Saxon "cheap," meaning to buy, and was removed here from some other site. There are many such crosses about, especially in the North of England, and Somersetshire and Cornwall, too, are rich in them. They were intended to remind people of the sacredness of bargains and to tell both buyers and sellers that "no one ought to go beyond or defraud his brother in any matter." I am inclined to the former theory and to think that this cross has always been what is known as a churchyard cross and that it stands on its original site, or, more probably,



STRATTON CHURCH BEFORE RESTORATION

on the site of a more ancient one which might have been the church-place of the district prior to a church being built. I may mention that an effort is being made to restore this venerable monument of antiquity. Miss Ashley has started a subscription for that purpose, and has, I understand, already some £10 in hand. If any of you ladies and gentlemen feel sufficient interest in ancient churchyard crosses, of which we have but few instances in this county, to assist in this very interesting work, subscriptions will be gladly received either by the Vicar or by my brother churchwarden or myself. The history of Stratton Church, as recorded in its stones, would show that the original church was of Norman construction, built about the year 1140. This building, it is reasonable to suppose, was of the type common to village churches of the Norman period, a long narrow building, whose timber roof was covered with thatch or shingles of wood. The Norman church may have been burnt out, or it may have been taken down to make way for a larger building, rendered necessary by the increase in the population of the village. Both hypotheses are tenable. That some disaster befel the church is probable, if only from the disappearance of the Norman font at so early a period as the early English, whilst the fact that the early English church had entrances on the north, west, and south seems to show that the village had extended on all sides of it. A piscina belonging to this church was found in a heap of stones, the remains of the old chancel. Originally it was projected from the wall and was supported on a shaft. Of the early English church which succeeded the Norman building the porch, chancel arch, hagioscope, wall, and font remained at the period of the last restoration. Surmounting the wall of the western end was in all probability a bell turret or eage. This gave place 100 years later or so to the present tower, which belongs to the Decorated Period. Early in 1889 in accordance with the instructions of the Vicar and churchwardens, Mr. G. R. Crickmay, diocesan architect, made a careful survey of the church, and he reported that originally there was a chancel, but this had been removed very many years, whilst the chancel arch and two hagioscopes

in the east wall of the nave had been walled up in or about the year 1547. The tower was in a good state of preservation, but required the joints of the stonework raked out and re-pointed, the mullions and louvres to windows of bell stage renewed, other stonework restored, a new west door, and the bells rehung in new framing. The oak staircase and enclosure in the tower formed a very excellent, beautiful, and almost unique specimen, but it required careful restoration. The nave walls were in a very insecure state, and the roof was much decayed and required reconstruction. The windows were very good specimens of the Perpendicular Period, but the pews were high, modern, deal enclosures with no character worth preserving. Mr. Crickmay recommended that the nave and north porch be taken down and rebuilt, re-using the old stonework, renewing the roofs, re-covering the nave with the old cast lead, and re-using the stone tiling on the porch. It was also recommended that the floor of the church, which was 2ft. 3in. below the level of the ground on the north side, should be raised in order to keep the floor of the tower at the present level. Mr. Crickmay furthermore advocated the removal of the gallery in order to bring into view the tower arch, the west window, and the picturesque tower staircase. It will be observed that the work of restoration has been very carefully and successfully carried out in accordance with the above report. The old chancel arch being found to be in a very weak state was taken down and rebuilt into the north wall of the chancel, a modern and larger arch being substituted in its place. The few pieces of old stained glass intact have been preserved in one of the south windows, whilst the two north windows have been entirely re-glazed with the clear glass of a somewhat later date of the old edifice.





The Origin of the Valleys in the Chalk Downs of North Dorset.

By A. J. JUKES-BROWNE, F.G.S.



IT is an established axiom in geology that valleys have been formed by the erosive action of running water. It is assumed that every valley was at first merely a watercourse formed by the union of the rivulets of rain which ran off the local watersheds, and it is believed that every valley, however deep, has been excavated by the water which has run down it since the time when it first became a watercourse, and widened by the rain which has run down its sides.

When, however, we stand on one of the ranges of the chalk downs and look into one of the deep dry "combes" which indent its flanks it often seems difficult to believe that such deep hollows could have been formed by running water. Many people would point to the narrow watershed which divides the one set of combes from those on the other flank of the ridge and ask how rain running off such a ridge could dig out such deep and steeply shelving troughs. Again, if we walk to the end of one of the bold promontories which separate such "combes" from one another and command a view of the larger valley into which these

minor valleys open, the geologist of the party may be asked how that little stream which now winds like a silver thread through the long and comparatively broad valley can possibly be the agent by which that valley was formed.

These doubts and questions are very natural ; the geologist will frankly admit that the little stream is not now deepening the valley and that it is only in times of exceptionally heavy rainfall that any appreciable amount of detrition is accomplished. The work is practically done ; valley-making is a consequence of certain physical changes, and there comes a time in the history of every land when valley-erosion ceases and other physical changes may lead to the partial or complete filling up of previously existing valleys. It will be my endeavour in this paper to explain the peculiar features of the valleys and combes which give such a varied aspect to the scenery of the chalk hills and why it is that so little erosive work is being done in the South of England at the present time.

The district to which the following remarks will specially refer is that which lies between the valley of the Frome and the line of chalk escarpment which stretches from near Evershot to Shillingstone in the valley of the Stour, and forms the south side of the Vale of Blackmore. Anyone who knows this district, or anyone who has seen a map of it, will remember that it consists of a series of ridges and valleys which run roughly from north to south, but that all the valleys have a tendency to trend to the east in the lower part of their courses ; I am now referring to the main valleys along which water is always running. The ridges are furrowed by short valleys or "combes" which open eastward and westward into the main valleys where these run from north to south.

The first question which requires an answer is—why do these main valleys take such regular and parallel courses ? The answer is a very simple one, namely, because the streams which began the work of excavation ran over the surface of a plain or plateau which sloped southwards. To explain the courses taken by the

rivers of Dorset we must carry ourselves back in imagination to a time when the valleys were not, when the great escarpment of the chalk did not exist, when the natural watershed of the country lay to the north of this escarpment. Imagine a plain sloping, not uniformly, but with a general inclination toward the south-east over what is now the broad Vale of Blackmore and across the top of what subsequently became the chalk escarpment to a shore-line that lay much farther south than the present coast. How else is it possible to explain the course of the Stour; how could that river have cut through the chalk hills between Shillingstone and Blandford if the escarpment had always formed the great rampart it now does; there is no fault or dislocation along its valley, and it is clear that, as in the case of the Thames, the river was in existence before the escarpment of the chalk was developed.

The original watershed which determined the courses of the Dorset rivers seems to have extended from the hills above Lyme Regis north-eastward by but south of Crewkerne and Yeovil and thence by Sherborne and Wineanton to the high ground west of Mere and Warminster. The development and recession of the Jurassic and Cretaceous escarpments have caused much alteration in the natural drainage system, so that the watershed between the streams running to the north-west and those flowing south-east is now a very irregular line; but the sources of the Wily, the Stour, and the Frome appear to be on the original watershed, and all these rivers run south-eastward through the escarpment of the chalk.

Some of the valleys which traverse the chalk downs between the Frome and the Stour seem to be the abbreviated and subsequently deepened courses of the streams which took their rise beyond the present boundary of the chalk. The valley of the Cerne, for instance, breaches the chalk escarpment and looks as if it had once been continued northward. The same is the case with the Piddle Valley, which terminates at Henley in a low "col" or pass only 540 feet above the sea; but this "col" has a floor of

sand and gravel and is clearly part of a high-level valley which was continued northward over the site of Buckland Newton. Again, the Dewlish river actually rises on the northern side of the escarpment near the farm called Cothayes.

Remnants of the plain over which the streams began to run are still to be found in the peculiar kind of soil which occurs on the higher ridges of the downs. This soil is a reddish-brown sandy loam or clay, full of flints, some of which are rough and angular, some water-worn and rounded, and sometimes so numerous that the material is more of a gravel than a loam. This kind of soil is found not only on the high ground above the escarpment, but also on the ridges that run southward and even on some that overlook the valley of the Frome, but always 100 feet or more above the highest river-gravels of that valley.

It is especially noticeable that this stony and sandy clay truncates and passes over the outcrops of the two hard rocky beds which divide the great chalk formation into Lower, Middle, and Upper stages, and are known as the Melbourn Rock and the Chalk Rock respectively. These two rocks do not crop out along the escarpment, as they generally do in other parts of England, but pass over the tops of the ridges under the tracts of stony loam above mentioned. It is evident that the chalk was planed down to a nearly level surface before the gravelly deposit was accumulated; in other words that this deposit rests on a surface of marine erosion, which sloped gently upwards from the south-east to a high level beyond the chalk escarpment on the north-west.

I have dwelt on this portion of the subject because it has a wider interest than the small district which is my special theme, and because, to comprehend the origin of any Dorset valley, we must have regard to the whole drainage system of which it forms an item. Let it be remembered, therefore, that the valley courses were marked out by streams which ran over the surface of a wide and gently-sloping area of gravelly clay. The present valley-system of the country is simply a more deeply engraved portion of the ancient valley-system, the date of which may be Pliocene or even Miocene.

From this remote period let us pass to an epoch in Pleistocene time, when the chalk escarpment had been developed and had receded southward to the line of country which it now occupies. By this recession of the escarpment the valleys of the streams flowing southward into the Frome had been shortened, but these valleys were still shallow ; the river Frome was running at a level of 160 or 170 feet or more above its present course, and the general level of the land above the sea seems to have been about 100 feet lower than it is now, that is to say, the sea lay over all those parts of the county which are less than 100 feet above its present level.

Deposits of this period are found in the broad patches and tracts of gravel which occur on the north side of the Frome valley near Dorchester and run up to 160 or 170 feet above the river. These tracts of gravel originally formed a continuous strip parallel to the general course of the river, and the highest portions of them are, of course, the oldest, for in this part of its valley the Frome seems always to have impinged on its southern bank, wearing that away and deepening its channel at the same time, so as to leave a deposit of gravel on the northern or slack-current side. Thus, at the epoch we are now starting from, the Frome ran to the north of Wrackelford and Charminster, over the high ground east of Leap-gate,* and thence by Higher Boekhampton and Puddletown Heath. The tributary valleys at the same time joined the main river at corresponding levels above the bottoms of their present valleys.

From this time forward erosion was rapid and the conditions were favourable for valley-making. The annual fall of rain and snow was probably greater than it is now and *the land was slowly rising*, so that the volume of the streams was larger and the height through which they had to fall in order to reach the sea was being constantly increased ; hence they were continually deepening their channels. The chalk was eroded and washed away, while the flints were spread out into sheets of gravel, and large quantities of such

* Leap-gate is at the bottom of a hollow two miles out of Dorchester on the upper road to Cerne. It is marked in the Ordnance Survey lin. map of 1811, but not in that of 1892, the turnpike gate having been removed.

material were carried down by the tributary streams into the valley of the Frome.

As the Frome cut its valley deeper and deeper so did its tributaries deepen their valleys, the depth of the one regulating the depth of the other; now we find the old gravels of the Frome stretching down in gentle slopes to within 30 or 40 feet of the water meadows; then comes a steeper bit of slope, where chalk lies below the surface soil. Moreover, this slope runs into and is continuous with the sides of a number of minor valleys, which traverse the gravel-covered area and divide it up into a number of separate strips and patches. Clearly, something happened to quicken the rate of erosion, enabling all the streams to cut deeply into the chalk, developing a new set of minor valleys and giving the main river such velocity that for a time no gravel could find a resting place in its channel.

There are two ways in which this increased velocity may have been caused—(1) by increase of rainfall and (2) by upheaval of the land. It is probable that the latter was the cause in this case and that the slow uprise which had been previously in progress now proceeded at a more rapid rate. The extent of this movement must be estimated not only by the height of the chalk slope above mentioned, but by the depth to which the valley-bottom extends beneath the alluvium. Of the actual depth of this I have no information, but it is not unlikely to be from 20 to 30 feet on the southern side of the alluvial level.

It will now, I trust, be apparent how the valleys in the country north of the Frome came to have their present depth. The surface of the higher parts of this district is the ancient surface over which the streams began to flow, and these streams have sunk their channels deeper and deeper into the land, as this land gradually rose higher and higher above the sea. The base-level of a main valley is dependent on the sea-level; the base-level of a tributary valley depends on that of the main valley. Thus, as the land was upheaved, the general base-level of erosion was lowered and every stream deepened its valley.

At the end of this period of upheaval the valleys were actually deeper than they are now, because there was then no alluvium in them, only terraces of gravel above the channels which the streams were cutting in the chalk.

The combes and dry valleys which open into the permanently-watered valleys are rain-gulleys cut by the water flowing into them off the ridges after heavy rains and snowfalls. Some of them, however, may at one time have contained springs, and consequently permanent streams or rivulets, for when the rainfall was greater the water-level under the hills must have been much higher than it is now, so that springs broke out at higher levels, and many of the combes and "bottoms" toward the northern ends of the valleys may then have been perennial water-courses fed by springs. The recession of these spring-heads may have assisted in the formation of the combes.

There is still another feature about these chalk valleys which requires explanation, and that is their width. What has hitherto been said only accounts for their depth, but does not explain how some of them came to be so wide or how the broad open combes like Yelcombe Bottom, N.E. of Cerne, came to be formed.

It is to the action of rain that the width of these valleys must be ascribed, and rain acts on chalk in several ways; some of it runs down the slopes and carries with it the loose particles thrown up by worms, ants, rabbits, and other creatures, so that the soil on a slope is always being carried downward. Darwin estimated that on a grass-covered chalk slope of moderate steepness (only $9\frac{1}{2}$ deg.) 23lbs. of soil will be annually carried down to the bottom along every 100 yards length of the slope or valley side; * and as many of the slopes in this district are twice, and in some places three times, as steep, a much larger quantity of debris must be carried down.

Again, some of the rain sinks into the ground and acts on the chalk itself, dissolving some of it and carrying it away in solution,

* Vegetable Mould and Earthworms, 1881, p. 269.

widening all the cracks and joints in the rock and loosening the whole mass for some depth. This dissolving and loosening action is going on wherever rain falls on calcareous rocks, but on steep slopes the action of gravity assists in widening the fissures till at last, after some particularly wet season, a slice of the valley side founders down in a landslide. Such landslips still take place occasionally in chalk valleys, and the marks of the old slips may frequently be seen; while during the long period of valley-making, when rainfall was greater, landslips must have been much more frequent than they are now. Melting snow also is even more conducive to landslips than a single heavy rainfall.

It is easy to see how, at a time when all detritive processes were very active, valleys which were being cut out of such a loose and soluble rock as chalk would be widened, as well as deepened, and would thus gradually acquire their present dimensions. The material, which was finding its way down to the bottom of the slopes, was then more rapidly carried away by the action of surface waters, so that less talus and soil accumulated, and the valley sides were in a perpetually unstable condition, liable to founder down in every heavy rain or time of melting snow.

The peculiarly-rounded outlines and finely-curving slopes, which are everywhere the characteristic features of chalk scenery, are due to the manner in which chalk moulders down under the action of rain; and these features contrast with the bolder and more cliff-like sides which valleys cut through harder limestones always exhibit.

There still remains another feature in the longer valleys which has to be accounted for: how is it that these valleys are not now being deepened and why do they always contain a greater or less width of flat meadow land?

Valley-making in the South of England came to an end because the upheaval came to an end and a reverse movement of subsidence ensued, as attested by the estuaries in which the valleys end and by the submerged forests along their shores. Subsidence diminishes the velocity of a river, submerges the seaward end of its valley, and backs its flood-waters far up the valley. Fine sediment is thus

deposited in the valley instead of being carried out to sea ; alluvial flats are formed, and these increase in width as subsidence proceeds, and more and more sediment is thrown down upon them till at last, when the land is again stationary, the valley-floor has been converted into a broad tract of meadow land, through which the river finds a meandering course. This is the state to which all the rivers of Southern England are reduced.

The floor of the Frome valley being gradually raised in this way, the velocity of the tributary streams was correspondingly checked, and they began to flood their valleys, depositing first gravel and then sand, and finally mud, forming the miniature alluvial levels which slope down to and merge into those of the Frome. Each stream was thus deprived of its erosive power and was compelled to begin filling up the channel which it had cut for itself in the days of strength when England was a "rising country."

Put in a few words, therefore, the process of valley-making depends primarily upon the movements of the land. If a country remains stationary for a sufficient length of time valley-making comes to an end : no river can excavate its channel much below the level of low-water mark ; no tributary can cut its valley deeper than that of the river it flows into. If the land subsides the valleys are silted up ; if it is raised they are cut deeper : thus if England were to be raised higher out of the water than it is now the process of valley-making would be started again, the rivers would dig deeply into their alluvial levels, and these would be converted into broad flanking plateaus like the "carse" of the Scottish Lowlands.

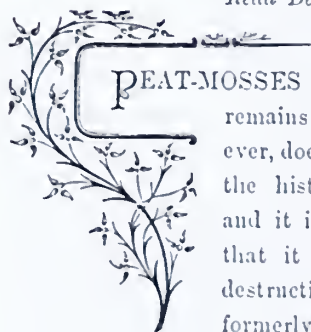
I have now endeavoured to explain the principal facts connected with the valleys in the chalk country north of the Frome. Each combe and hollow is part of a regular system of drainage, and this drainage system was initiated in a far distant time when the rain was free to make its way over the surface and to gather into water-courses, just as when the tide retires from a flat sandy bay, the water oozing out of the sand makes its way over the surface, gathers into rivulets, and carves out a complete system of valleys in miniature.



On Charred Pine-wood from Dorset Peat Mosses.

By CLEMENT REID, F.L.S., F.G.S.

Read December 10th, 1894.



PEAT-MOSSES in the south of England often yield remains of the common pine. This tree, however, does not seem to have grown there within the historic period, except where planted; and it is only within the last hundred years that it has again become abundant. The destruction by fire of the pine forests which formerly clothed extensive districts is often alluded to by archaeologists. Their description of the half-burnt pine-wood found under peat-mosses is sometimes most exact, and till recently I should not have thought of doubting the accuracy of those observations. During a stay last autumn (1893) at Parkstone I had occasion, however, to examine some sections through a peat-moss exposed in the new reservoirs of the Poole Waterworks. Some feet down in the peat, and usually close to the base of the deposit, lay several logs of pine-wood. The excavation was, unfortunately, nearly finished when first visited, but it was still possible to examine some of the logs in place; and smaller pieces of wood mingled with occasional fir-cones were to be

found among the material thrown out. Every piece of pine-wood was more or less charred externally, as if by fire. This seemed, of course, to corroborate the common idea of the destruction of the trees by burning; but on closer examination I was struck by the curiously partial way in which the charring had affected the wood. One large log, exposed in the bottom of a drain and still partially imbedded in the peat, was charred on every side, and the knots stood out just as they do in a pile that has long been exposed to the action of the sea. This is not at all what one would expect in the case of burning, for the knots are saturated with turpentine and are exceptionally inflammable. It was very singular also that every fragment of pine-wood—and probably nearly a hundred were examined—showed more or less charring and that, on the other hand, the fragments belonging to other trees were untouched by fire.

It was impossible properly to locate the various loose fragments of wood scattered about, but the examination of portions of the matrix adhering to them showed that the uncharred pine-wood had been imbedded in a sandy soil like that still to be seen lying beneath the moss. The charred surfaces, on the contrary, were always more or less penetrated by peaty fibres, and had evidently been imbedded in peat. In a few cases one end of a root or log was charred, the other being uninjured. The charred portion had projected up into the peat; the unaltered part had always been imbedded in the ancient soil. This might seem to support the established view that the peat began to grow directly the drainage was stopped by the burning and fall of the trees. But against this I must point out that the fir-cones, though carbonised, are certainly not charred, and the same is the case with the wood not belonging to pine. It is impossible without further evidence to speak confidently on this question, but I should like to suggest that the pine-wood has not been attacked by fire, but that when imbedded in growing peat it becomes slowly turned into charcoal, the parts surrounded by clay or sand remaining comparatively unaltered.

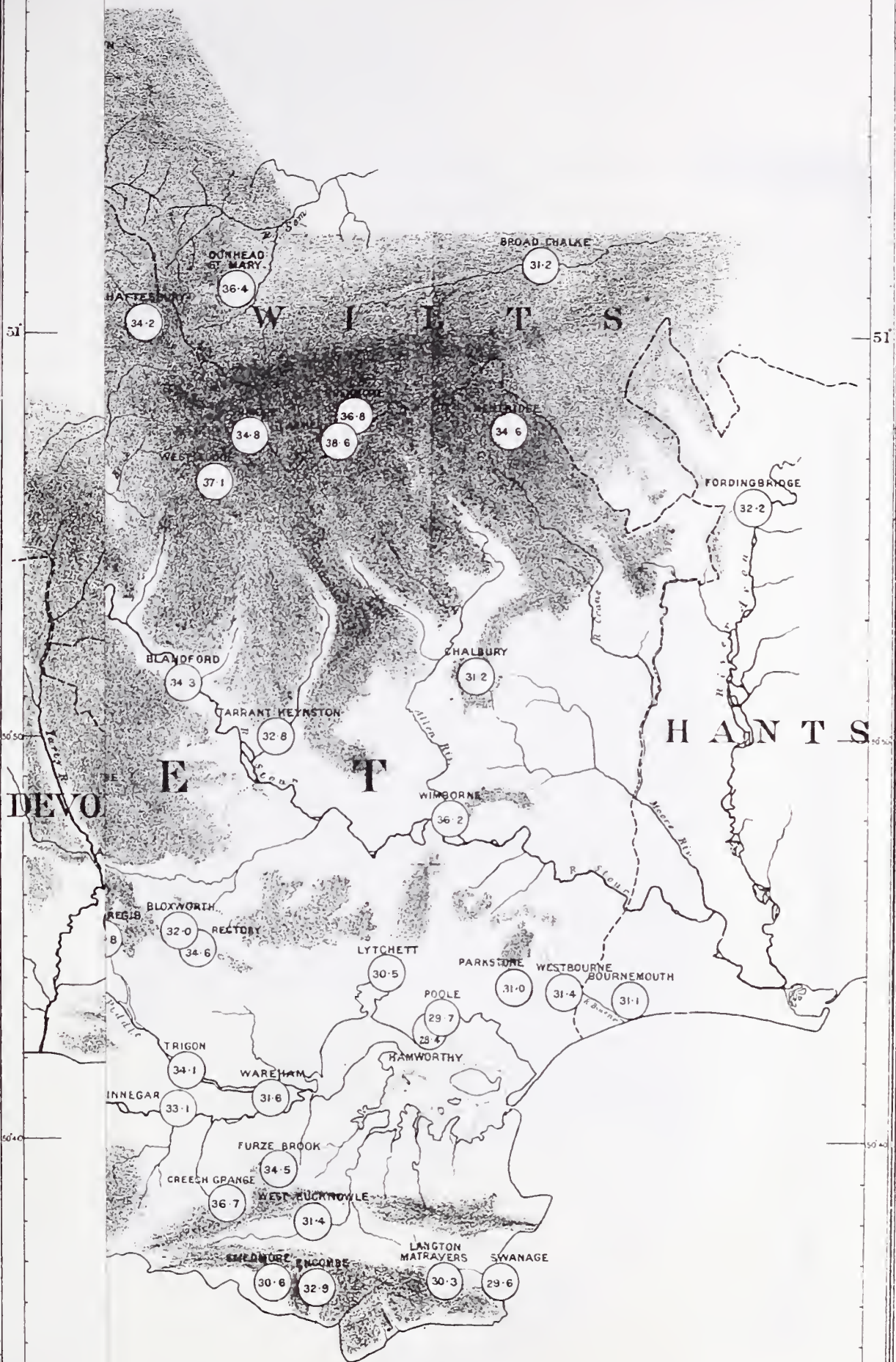
Forest-fires often occur in the pine-woods near Bournemouth and Parkstone, and one has abundant opportunities for studying their

effects. One thing is particularly noticeable—that the fire never lasts sufficiently long to penetrate the bark of the larger trees. The leaves, twigs, and undergrowth are burnt and the bark to a certain extent is charred; but the wood beneath is merely scorched sufficiently to destroy the vitality of the tree. The destruction of the pine-trees found in peat-mosses cannot therefore be due to ordinary fires.

It might be suggested that the logs found are the remains of fires made by neolithic man. But to this explanation there is the objection that a savage would not usually build a fire of logs five feet or more in length; for some logs charred from end to end are as long as that. It is also obvious that in the case of burning the knots would be charred at least as quickly as the rest of the log and would not be left projecting. The cause of the destruction of the ancient pine forests of the south of England is still unknown, though it may be connected with bygone climatic changes.

It will also now be necessary to examine more critically the evidence on which has been founded the supposed destruction of many of the old pile-dwellings by fire. The artificial piles also may have been slowly carbonised and destroyed while imbedded in the growing peat, though in certain cases fire was undoubtedly the agency that destroyed these settlements.





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AVERAGE ANNUAL RAINFALL.

1848²² - 92,

 $\mathbf{B}\mathbf{I}'$

H. S. EATON, M.A.,

Past President, Royal Meteorological Society





Dorset Annual Rainfall, 1848-92.

By HENRY STORKS EATON, M.A., Cantab.,

Past President of the Royal Meteorological Society.



HITHERTO observers of rainfall in the County of Dorset seem to have pursued their labours independently of one another, each without reference to the statistics accumulated by others similarly engaged. Many registers of rainfall have thereby been lost; and, until of recent years, the data have been insufficient for a satisfactory discussion of the subject. Some of the records upon which this paper is based have been supplied directly to the Author; but most of them have been obtained from Mr. Symons, the Editor of *British Rainfall*, without whose assistance the investigation could hardly have been undertaken. After strict inter-comparison a few of the earlier registers have been rejected as erroneous; and one or two stations, with returns of a doubtful character, while retained from the importance of their position, have been either marked by a query or are otherwise noticed.

The stations available for the enquiry are one hundred and twelve in number, counting as a separate station any one where the rain gauge has been shifted more than a few feet from the original position. There are seventy-five stations in Dorset; and, within a few miles of the County boundary, eight in Devon,

seventeen in Somerset, seven in Wilts, and five in Hants. No record of less than a year has been considered. A few interpolations are shewn in italics in the tables. Particulars relating to the stations and the position of the gauges, also the deduced and adopted average rainfall of the whole series of stations, are set forth in Table I. in the Appendix. The annual rainfall at each place, and the ratio of the rainfall of each year to the adopted average of the place is given in Table II.

The method of reduction has been as follows:—There are five stations in Dorset where rain was measured for 24 years and upwards, namely, West Bucknowle, Melbury Sampford, Shaftesbury, Chalbury, and Osmington. Commencing with 1848 rain was observed continuously at West Bucknowle till 1871, when the record terminated. Meanwhile observations have been regularly carried on at Melbury from 1856. Thus for 16 years, 1856-71, contemporary observations were made at West Bucknowle and Melbury. The total rain in these 16 years was 496·66 inches at West Bucknowle and 611·33 inches at Melbury, or in the proportion of 10,000 to 12,301. It is assumed that the same ratio of rainfall held good for these two places for the 8 years, 1848-55, when there were no returns from Melbury and for the 21 years, 1872-92, when there were none from West Bucknowle. On this basis the calculated average annual rainfall of the 45 years, 1848-92, is for West Bucknowle 31·31 inches and for Melbury 38·62 inches. Dealing in the same way with West Bucknowle-Chalbury, where there are 7 years of co-existent observations, West Bucknowle-Osmington, 5 years, and West Bucknowle-Shaftesbury, 7 years, four series of deduced values were obtained for each station, the rainfall at West Bucknowle being a factor in each case. These in turn served as a fresh basis for calculating the rainfall at all the other stations. The averages of the four series of values thus found is the adopted average annual rainfall, and is given in the last column of Tables I. and IV. in the Appendix.

Three stations outside the County are not shewn on the maps ; namely, Otterhead, close to the source of the River Otter among the Blackdown Hills in Devon, $4\frac{1}{4}$ miles from the boundary, and west-north-west of Chard in Somerset, with an annual rainfall of 44·2 inches ; Maiden Bradley, the wettest place in Wilts, with a rainfall of 41·0 inches, 5 miles from the boundary, north-north-west of Mere ; and Wood Green, north-east of Fordingbridge, Hants, with a rainfall of 31·2 inches, $3\frac{1}{2}$ miles from the boundary. The only station in the County not shewn is Verne Citadel, on the summit of the Island of Portland, between Fortune's Well and the Breakwater.

It is a matter of common observation that a gauge collects more rain with the receiver close to the ground than when raised above it. Many careful experiments prove that, apart from the question of insplashing, this is chiefly, if not altogether, caused by the action of wind, which is greater in the higher and more exposed position. As a result the change near the ground is very rapid and uncertain ; at 5 feet the proportion is about 94 to 100 at 1 foot above the surface, and at 20 feet as 88 to 100. Thus corrected the rainfall at Verne Citadel, Portland, 20 feet above the ground, would be raised from 27·67 inches to 31·44 inches. At West Bucknowle the ratio at $4\frac{1}{2}$ feet being about 94, the calculated rainfall at 1 foot is 33·41 inches. Similarly at Melbury, if corrected for elevation, it would be 39·81 inches, and at Chalbury, 31·80 inches. But as the ratios vary with the seasons, as the factors derived from observations taken at unexceptionable sites are rarely applicable in practice, and as it is difficult to find a site for the gauge where the growth of vegetation in the country, or erection and alteration of buildings in a town does not in time modify the exposure, and affect the ratio even when the gauge is undisturbed, no correction has been applied.

Where rain gauges are protected from wind, the difference between their indications at varying heights is small, and it sometimes happens, within a limited compass, that the higher gauge collects the larger amount of rain. Thus, at Sturminster Newton (No. 55), the gauge is in a sheltered garden on a post

4 feet 9 inches above the ground. There the annual rainfall is 34.15 inches; but at Riverdale (No. 56), in an adjacent open field, swept by the wind from every quarter, at 1 foot from the ground the annual rainfall is only 30.39 inches.

At South Street, Axminster (No. 82), the gauge, 3 feet 6 inches from the ground, is in a small garden surrounded by houses, over the roofs of which the rain is apparently carried in excess in gales of wind, and falls within the protected area on the lee side, while at Furzebrook (No. 81), $\frac{1}{2}$ mile off, where the gauge was on a dwarf wall on a bank open to the south-west, rain coming from that direction was partly drifted over the gauge without entering it, and the annual rainfall was 32.60 inches compared with 37.50 inches at South Street.

Most of the rain gauges used were cylindrical, 5 inches in diameter. At Bloxworth (Nos. 7 and 8), Bridport (Nos. 12, 13, and 14), Cattistock, Langton Herring, Langton Matravers, and Littlebredy (No. 33), they were 8 inches; and the same at Maiden Bradley, Broad Chalke, Fordingbridge (Oaklands), South Petherton, and Stowell. At Enecombe, Portland (Nos. 50 and 51), and at Melbury Sampford they were 12 inches square, except that in 1892 a 5-inch cylindrical gauge was substituted at Melbury. Those at Bere Regis, Portland Breakwater, and Tudbeer, near Chard, were Croley self-registering gauges. But it has been proved by many years' observation at the Royal Observatory, Greenwich, that the Croley gauge in practice is liable to get out of order through the clogging of the mechanism; and it is probable that the relatively small amount of rain measured at Tudbeer and Portland is due to this cause, aggravated in the case of Portland Breakwater by inattention to the instrument which was only occasionally observed. On the other hand the rainfall seems too large at Wimborne, where, as a matter of fact, the observations were discontinued after a few years in consequence of the observer discovering the inefficiency of his deputy. Further observations may be expected to shew a less copious rainfall in the district, which, however, is not at present represented.

The general distribution of the rainfall is shewn by the blue shading on the accompanying Map, Plate 1, the deeper tint corresponding with the heavier rain. The brown shading on Plate 2 is in proportion to the elevation of the land above sea-level where it exceeds 200 feet; below 200 feet the map is not shaded. The circles on both maps give the positions of the stations, and the included figures the annual rainfall at each; but at Sturminster Newton and at Upwey the rain is deduced from observations at two adjacent stations, and at Swanage from three. Outside the County, Axminster and West Coker have been similarly treated.

From the two maps attached to the paper it will be readily seen that the distribution of the rain is in conformity with well known natural laws. The vapour-laden air from over the warm water of the Atlantic, the chief source of supply, in passing inland from the coast under the prevailing south-west wind, is cooled by expansion in its onward progress over the hills and discharges rain copiously, especially on their further flanks. A close observer of Nature, but not a meteorologist, used to say of the rain on the high ground behind Abbotsbury: "With a south-west wind the clouds get a blow from the hills and cry on the other side." Further on, over the low-lying lands of Somerset the rainfall is 2 or 3 inches less than on the south coast of Dorset. Omitting the exceptional returns from Portland, Wimborne, and Tudbeer, it will be noticed that between Lyme Regis and Bridport the rainfall is slightly under 34 inches, falling to 30·5 inches round Weymouth and to 30 inches round Poole. Inland from the coast it rises from 33·4 inches at Bridport to 34·0 inches at Netherbury, which is 125 feet above sea-level and 5½ miles from the coast, to 39·3 inches at Beaminster, 1½ mile further on at the foot of the hills, and to 42·6 inches at Cheddington, just on the water-shed dividing the English from the Bristol Channel, 604 feet above the sea. Thence it declines to 33·3 inches at West Coker, 240 feet above the sea, and to 28·4 inches at Ilchester, only 40 feet above sea-level. Farther east, between Abbotsbury and Littlebredy, a ridge of hills about

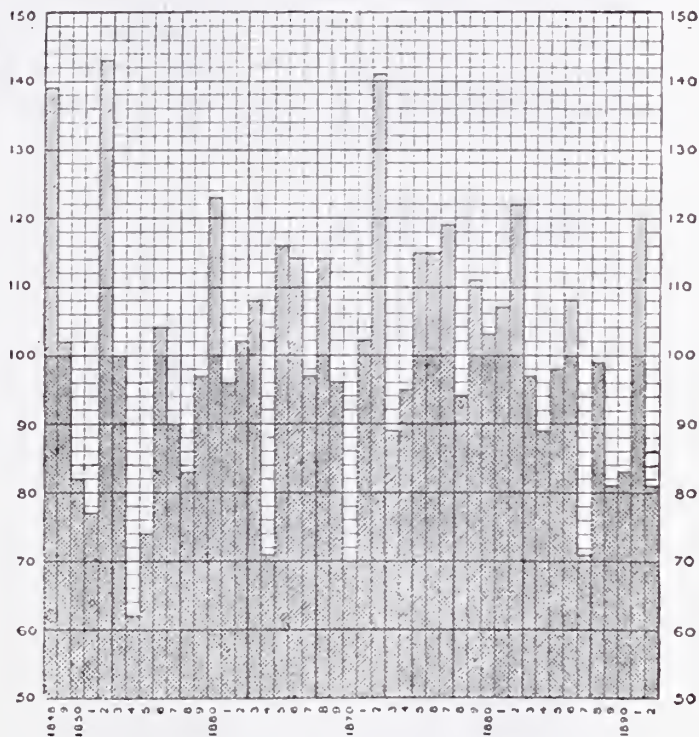
600 feet high intervening, the rain rises from 30·7 inches to 39·2, being 8·5 inches in less than 3 miles ; and between Portisham and Littlebredy, in a distance of 2 miles, it increases 7 inches. Of the two stations at Upway, that nearest the sea (No. 61) has an annual rainfall of 30·95 inches at 70 feet above sea-level ; the other (No. 62) 90 feet above the sea, and $\frac{1}{4}$ mile nearer Ridgeway Hill has a rainfall of 33·05 inches. On the chalk hills extending from west to east across Central Dorset the annual rainfall exceeds 40 inches. Here the County attains generally its highest elevation, from 600 to 800 feet. The highest point in the County, Pilsdon Pen, west of Beaminster, exceeds 900 feet, closely followed by Bulbarrow, near Haselbury Bryan. The hills are nearly as high east and south-east of Shaftesbury ; but the clouds in their passage over Central Dorset lose a portion of their burden, and the rainfall in North-east Dorset does not quite attain 40 inches. North of Central Dorset the rain diminishes to 34 inches in Blackmore Vale. In the $5\frac{1}{2}$ miles between Minterne Magna and Folke the diminution is 9·2 inches. Between Haselbury Bryan and Sturminster Newton the rate is still greater, being 15·5 inches in $4\frac{1}{2}$ miles. At Haselbury Bryan, however, the fall of 49·0 inches may perhaps be increased by insplashing from some flints built round the gauge to support it in position ; but the village is only $2\frac{1}{2}$ miles north-west from Bulbarrow which has an elevation of 903 feet, and 4 miles north-east of Church Hill 822 feet, and Nettlecombe Tout 854 feet, and it is the proximity of high ground rather than the actual elevation above sea-level that influences the fall of rain.

The fluctuation of the rainfall from year to year is based on the seventy-five Dorset stations alone, and is shewn in the accompanying figure, and in the Appendix, Table III., in ratios of the fall to the adopted average, the latter being taken as 100. The ratio of the rainfall for any year is found by dividing the former value by the latter. As an illustration, 28·52 inches of rain fell at Beaminster in 1892, the adopted average rainfall at

Beaminster being 39·31 inches ; then as $39\cdot31 : 28\cdot52 :: 100 : 73$.
At Fortune's Well, Portland, the rainfall for the same year was 26·70 inches, and as the adopted average is 30·15 inches, the ratio is 87. At all the other stations the ratios lay between these

RATIOS OF DORSET RAINFALL, 1848-92,
TO THE ADOPTED AVERAGE ANNUAL RAINFALL.

AVERAGE = 100.



values, the average (Table III.) being 81. For England generally it was 99. From this it appears that 1892 was a year of deficient rainfall ; that in Dorset the deficiency was least at Fortune's Well, and greatest at Beaminster, where it constituted an actual

drought, the rain being less than three-quarters of the average ; while in England as a whole the rainfall was only slightly less than usual.

Since the ratios for the earlier years depend on very few stations, and are therefore of less weight than those of later date, the ratios for the same 45 years, calculated by Mr. Symons for the whole of England, are given for comparison (Table III.). The close agreement between them, the difference being only 0·31, is most satisfactory, seeing that the average for England, 100·31 for the years 1848-92, compares with 100 for England over a period of 165 years. Hence the average annual rainfall of Dorset, ascertained from the present investigation, is not likely to be materially altered by future observations.



APPENDIX.—TABLE I.

No.	Station.	Number of Yearly Records.	Approximate Height of Rain Gauge.		Average Annual Rainfall, 1848-92, deduced from				Adopted Average Annual Rainfall.
			Above		Challbury.	Mellbury.	Osmington.	Shaftesbury.	
			Ground.	Sea-level.					
			Ft.	Inches.	Inches.	Inches.	Inches.	Inches.	
1	Abbotsbury	23	3	6	30.77	30.08	30.76	30.06	30.72
2	Ashtone	2	1	0	33.90	30.17	35.90	34.00	34.77
3	Beaminster	19	0	10	39.77	39.08	39.48	38.32	39.31
4	Bere Regis	6			32.85	32.07	33.16	32.37	32.76
5	Bingham's Melcombe	11	1	3	38.03	39.07	38.07	40.34	39.30
6	Blandford	9	1	6	34.08	33.72	34.28	35.15	34.31
7	Bloxworth	10	2	0	32.27	31.02	30.76	30.00	31.16
8	"	7	2	0	33.18	33.02	33.51	32.75	33.31
9	Bloxworth Rectory	8	1	6	34.48	32.02	34.93	32.75	31.58
10	Bridport, St. Andrew's Villa	20	0	11	39.53	39.62	39.54	31.75	39.86
11	" East Street	4	0	8	29.00	28.86	30.01	33.13	30.35
12	" Hill Side	1	0	10	39.01	27.49	30.34	35.74	30.98
13	"	7	1	3	34.42	33.07	33.22	33.09	33.45
14	" Downe Hall	2	1	0	34.34	31.03	32.01	34.13	33.26
15	Cattistock	6	1	0	42.73	42.05	43.30	42.07	42.63

APPENDIX.—TABLE I—(continued).

No.	Station.	Number of Yearly Records.	Approximate Height of Rain Gauge.		Average Annual Rainfall, 1848-92, deduced from				Adopted Average Annual Rainfall.
			Ground.	Above Sea-level.	Challbury.	Melbury.	Osmington.	Shaftesbury.	
			Ft. Ins.	Feet.	Inches.	Inches.	Inches.	Inches.	Inches.
16	Challbury	28	2	338	31.21	31.08	31.24	31.97	31.16
17	Challington	10	1	601	42.91	42.11	43.28	41.91	42.50
18	Craftsley, Furze Brook	13	1	117	35.50	31.91	31.75	33.33	31.52
19	Creech Grange	6	1	290	36.76	36.57	37.21	36.21	36.70
20	Dorchester	8	0	305	30.90	35.56	36.06	37.19	36.52
21	Embsay	8	0	150	32.88	33.23	33.30	32.35	32.91
22	Eversholt	4	1	590	39.92	38.81	39.30	38.45	38.95
23	Foke Alder	2	1	265	35.54	35.93	32.45	31.32	33.55
24	Foke Alder	2	0	315	36.57	36.91	36.24	36.90	36.50
25	Freene Aunbury	4	0	320	38.97	36.84	38.68	41.98	38.89
26	Gillingham	14	1	241	33.92	33.18	33.32	32.93	33.12
27	Haworthy	3	1	12	28.29	29.93	29.03	29.20	28.37
28	Haworthy	3	1	305	43.21	48.45	49.18	48.47	49.01
29	Iscombe, West, Lodge	3	0	580	36.99	36.98	36.99	37.30	37.08
30	Kimmeridge, Shaftesbury	3	0	391	29.17	29.70	30.58	32.93	30.59

APPENDIX.—TABLE I—(continued).

No.	Station.	Number Yearly Records.	Approximate Height of Rain Gauge.		Average Annual Rainfall, 1848-92, deduced from					Adopted Average Annual Rainfall.
			Above Sea-level.		Chalbury.	Melbury.	Osington.	Shaftesbury.		
			Ground.	Feet.						
31	Langton Herring	15	0	158	Inches, 31.24	Inches, 30.46	Inches, 30.55	Inches, 29.51	Inches, 30.39	
32	Langton Matravers	12	0	229	29.99	28.80	31.39	31.10	30.39	
33	Littlebredy	10	0	318	29.17	29.52	29.15	29.55	29.35	
34	"	7	1	350	29.50	29.07	29.35	27.53	29.01	
35	Lyme Regis	7	1	19	32.70	33.76	37.76	32.41	34.16	
36	"	7	4	146	34.08	34.86	35.04	30.15	35.23	
37	"	6	1	160	33.56	34.82	33.03	31.99	33.50	
38	Lydbettminster, The Virells	10	1	60	29.74	30.42	31.00	29.80	30.49	
39	Melbury Sampford	17	2	480	38.81	38.62	38.13	38.42	38.02	
40	Minster Magna	10	2	560	44.33	42.97	42.36	41.06	42.83	
41	Moreton	8	1	95	37.08	35.67	36.04	34.43	35.95	
42	Netherbury	7	1	125	33.70	34.10	33.70	33.13	33.95	
43	Osington	26	1	242	33.72	33.91	33.74	33.58	33.74	
44	Parkstone	10	1	198	31.95	30.62	31.52	30.30	31.00	
45	Pentridge	3	1	300	36.25	35.04	33.94	32.28	34.60	

APPENDIX.—TABLE I—(continued).

No.	Station.	Number of Yearly Records.	Approximate Height of Rain Gauge.		Average Annual Rainfall, 1848-92, deduced from				Adopted Average Annual Rainfall.
			Above		Chubbury.	Melbury.	Oadington.	Shaftesbury.	
			Ground.	Sea-level.					
			Feet.	Inches.	Inches.	Inches.	Inches.	Inches.	
46	Poole	15	6	30.47	29.85	29.94	28.72	29.75	29.75
47	Portsmouth	3	230	32.84	31.25	33.47	33.02	32.79	32.79
48	Portsmouth, Breakwater	10	122	27.94	27.94	27.94	27.94	27.94	27.94
49	Fortune's Well	3	125	30.00	28.70	30.83	30.97	30.15	30.15
50	" The Grove	8	229	30.29	30.29	30.29	30.45	30.37	30.37
51	" The Verne Citadel	4	473	28.78	28.78	28.78	27.31	26.36	27.67
52	Shaftesbury	25	722	31.14	31.14	34.22	34.05	31.17	31.17
53	Sherborne	1	270	33.77	33.77	33.77	33.92	33.92	33.92
54	" School	8	290	34.16	34.16	34.55	35.62	33.86	33.86
55	Sturminster Newton	13	290	34.84	34.84	34.55	33.16	31.15	31.15
56	" Riverable	3	290	30.34	30.34	29.10	31.31	30.39	30.39
57	Swange	3	178	30.61	30.61	28.06	27.32	28.42	28.42
58	"	7	8	30.45	30.45	29.76	30.06	30.64	30.64
59	"	5	60	29.14	29.14	29.38	29.39	29.74	29.74
60	Tarrant Keynton	15	199	33.55	33.55	32.08	31.64	32.76	32.76

APPENDIX.—TABLE I—(continued).

No.	Station.	Number of Yearly Records.	Approximate Height of Rain Gauge.		Average Annual Rainfall, 1848-92, deduced from				Adopted Average Annual Rainfall.
			Above		Chalbury.	Melbury.	Osington.	Shaftesbury.	
			Ground.	Sea-level.					
			Pt. Ins.	Feet.	Inches.	Inches.	Inches.	Inches.	Inches.
61	Upwey	11	1 0	70	30.51	30.63	31.10	31.01	30.96
62	"	4	1 0	60	32.35	31.30	32.88	35.68	33.95
63	"	13	2 6	18	32.18	31.48	31.93	30.91	31.60
64	" Bimsgear	6	0 4	65	33.10	33.31	33.42	32.02	33.12
65	" Trigon	3	1 0	60	31.70	31.62	34.23	32.93	31.12
66	West Bucknowle ..	24	4 6	100	31.31	31.31	31.33	31.91	31.41
67	Westbourne	10	0 6	137	32.22	31.71	31.93	29.97	31.38
68	Weymouth, Lansdown Villas	1	1 0	116	29.40	28.49	27.34	27.07	28.73
69	Weymouth, Nothe ..	10	1 0	79	28.81	28.51	29.06	27.93	28.68
70	Wimborne	6	2 0	63	30.47	30.74	35.79	36.00	35.57
71	Winterbourne .. Whitechurch,	10	0 4	340	35.08	36.40	36.30	38.31	36.53
72	Longthorpe	19	0 4	259	38.08	37.82	37.92	37.53	37.84
73	Winterbourne .. Whitechurch,	3	0 10	270	35.21	33.77	36.17	36.09	35.36
74	Whitcombe	6	0 9	80	31.93	30.53	31.44	30.55	30.89
75	Wyke Regis	6	0 6	30	29.02	29.46	29.03	29.10	29.54
76	" Ivy Bank								

APPENDIX.—TABLE II—(continued).

ANNUAL RAINFALL.

[illegible]

APPENDIX.—TABLE II—(continued).

ANNUAL RAINFALL.

[illegible]

RATIO OF THE RAINFALL TO THE ADOPTED AVERAGE ANNUAL FALL.

	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.
Aldotshury ..	91	109	117	124	91	92	92	100	82	104	93	..	131	..
Bannister ..	103	105	114	120	106	86	100	99	72	108	70	81	120	73
Beeve Regis ..	..	..	..	..	..	..	..	..	64	103	78	84	110	85
Gingham's Malcombe ..	96	101	..	127	97	91	101	105	..	..	..	..	..	..
Hloxworth ..	96	104	96	..	..	..	..	107	72	101	75	78	125	..
" Rectory ..	..	..	..	..	..	..	83	113	68	109	75	82	127	81
Bridport ..	98	100	112	..	97	..	..	..	..	..	..	79	127	..
" Downe Hall ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cuttistock ..	..	..	..	..	..	..	..	..	97	..	140	83	120	..
Clubbury ..	91	102	103	112	89	92	90	110	72	91	83	84	125	71
Cleeke Castle ..	..	..	..	..	104	87	102	99	73	103	78	80	127	80
Fuze Brook ..	97	100	107	122	91	91	92	114	67	107	79	82	111	75
Creech Fringe ..	..	..	..	..	..	..	..	..	79	105	75	76	110	83
Evesham ..	..	..	..	..	..	..	..	..	71	90	76	82	127	80
Foke ..	..	108	..	..	..	..	..	..	..	..	..	..	..	..
Gillingham ..	103	100	107	120	100	90	98	110	73	101	80	80	121	76
Hammworthy ..	..	..	..	..	..	..	..	..	..	..	..	80	110	82

RATIO OF THE RAINFALL TO THE ADOPTED AVERAGE ANNUAL FALL.

	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.
Haselbury Bryan ..	94	100	99	110	120	90	89	83	103	77	102	79	86	121	70
Langton Herring ..	..	..	..	..	..	..	..	..	..	..	97	80	80	124	81
Langton Matravers ..	..	..	..	..	..	95	81	91	110	77	103	82	89	116	..
Littlebeedy ..	..	..	..	..	..	..	..	96	101	66	101	80	91	..	..
Lyme Regis ..	..	..	..	..	..	90	88	103	117	67	98	79	85	123	82
Lydebett, The Yarnells ..	..	..	..	..	122	114	90	105	100	..	..	71	86	130	81
Methury Sampford ..	90	101	98	110	124	101	88	90	..	..	..	..	..	..	..
Mintern Magna ..	..	90	100	100	102	90	90	86	109	73	95	80	84	..	..
Moreton ..	95	115	103	102	121	101	89	90	119	69	96	79	83	121	81
Osmington ..	92	116	103	107	121	93	93	97	121	67	97	73	83	117	77
Parkstone ..	..	..	..	..	..	93	93	..	..	..	..	..	..	121	81
Portridge ..	93	107	101	..	..	..	91	95	..	..	..	..	84	115	87
Poole ..	91	112	118	100	119	93	91	..	121	..	..	..	..	..	..
Portland ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Portland, Fortnes's Well ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
"The Vene's Chudel ..	94	123	89	..	..	..	..	..	..	..	..	..	84	115	87
Shutesbury ..	99	117	109	105	131	102	85	103	110	72	90	90	88	112	73

RATIO OF THE RAINFALL TO THE ADOPTED AVERAGE ANNUAL FALL.

	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.
Sherborne School ..	92	97	100	102	125	101	90	101	108	75	100	80	77	110	81
Sturminster Newton ..	..	..	96	98	127	110	..	..	..	..	..	..	81	120	80
Swanage .. " River Side	..	..	..	107	123	96	..	..	..	73	..	..	82	113	82
.. ..	..	..	..	..	..	..	..	..	120	..	92	75	84	110	83
Tarrant Keynton ..	91	111	100	103	123	96	85	102	113	71	97	81	82	120	79
Wareham ..	..	..	101	100	116	102	93	97	111	63	102	81	90	122	83
.. " Bournemouth	..	..	..	..	..	102	..	..	..	67	101	88	80	115	82
Westbourne ..	..	..	110	108	117	93	88	90	114	70	..	81	..	..	85
Weymouth, The Nabbe	..	..	..	..	121	82	81	100	110	73	101	81	78	121	..
Witchcombe ..	93	113	..	..	..	..	..	..	..	..	..	..	..	..	..
Witchcombe Whitechurch,	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Witchcombe Whitechurch,	94	115	103	109	119	104	82	93	99	69	110	81	76	..	..
Witchcombe ..	..	..	..	..	..	..	..	..	..	..	..	..	..	120	81
Wyke Regis ..	..	..	..	..	..	..	..	..	..	..	..	82	82	118	85
.. " Ivy Bank	..	..	..	..	..	..	..	..	..	65	104	81	81	110	85

APPENDIX.—TABLE III.

FLUCTUATION OF AVERAGE ANNUAL RAINFALL.

Year.	No. of Returns.	Ratio of the Rainfall. Average = 100.			Year.	Ratio.
		Dorset.	England.	Dorset greater.		
1848	1	130	126	+ 13	1854	62
1849	1	102	96	+ 6	1859	70
1850	1	82	90	- 8	1864	71
1851	2	77	86	- 9	1867	71
1852	3	143	136	+ 7	1855	74
1853	3	100	96	+ 4	1851	77
1854	2	62	71	- 9	1889	81
1855	2	74	83	- 9	1892	81
1856	6	104	93	+ 11	1850	82
1857	6	90	95	- 5	1858	83
1858	7	83	80	+ 3	1890	83
1859	6	97	99	- 2	1873	89
1860	7	123	122	+ 1	1884	89
1861	8	96	93	+ 3	1857	90
1862	8	102	102	0	1878	94
1863	9	108	93	+ 15	1874	95
1864	12	71	74	- 3	1869	96
1865	10	116	103	+ 13	1861	96
1866	10	114	113	+ 1	1867	97
1867	12	97	95	+ 2	1883	97
1868	11	114	103	+ 11	1880	97
1869	15	96	106	- 10	1885	98
1870	17	79	78	- 8	1888	99
1871	19	102	96	+ 6	1833	100
1872	17	141	133	+ 8	1871	102
1873	13	89	91	- 2	1862	102
1874	13	95	90	+ 5	1849	102
1875	13	115	113	+ 2	1880	103
1876	12	115	118	- 3	1856	104
1877	15	119	117	+ 2	1881	107
1878	20	94	106	- 12	1863	108
1879	22	111	109	+ 2	1886	108
1880	24	103	119	- 16	1879	111
1881	21	107	107	0	1866	114
1882	21	122	124	- 2	1868	114
1883	27	97	111	- 14	1876	115
1884	23	89	80	+ 9	1875	115
1885	24	98	102	- 4	1865	116
1886	26	118	115	+ 3	1877	119
1887	30	71	69	+ 2	1891	120
1888	33	99	97	+ 2	1882	122
1889	33	81	92	- 11	1860	123
1890	38	84	85	- 1	1848	130
1891	35	129	110	+ 19	1872	141
1892	32	84	90	- 18	1872	143
Average	..	100.00	100.00	- 0.02		

APPENDIX.—TABLE IV.

No.	Station.	Number of Yearly Records.	Approximate Height of Rain Gauge.		Adopted Average Annual Rainfall.
			Above		
			Ground.	Sea-level.	
DEVON.					
			Ft. Ins.	Feet.	Inches.
76	Rousdon	9	1 0	516	34.91
77	"	8	1 0	516	34.63
78	Clevelands	23	1 11	476	36.44
79	Uplyne	7	1 0	265	35.98
80	Great Trill	8	1 0	360	35.28
81	Axminster, Furzebrook ..	6	1 0	128	32.99
82	" South Street ..	11	3 6	138	37.59
83	Otterhead	8	..	800	44.19
SOMERSET.					
84	Seaborough	8	1 0	360	37.14
85	Chard, Thulbeer	8	4 0	439	39.15
86	Cricket St. Thomas	23	1 0	444	40.02
87	Crewkerne, Bincombe ..	24	1 2	280	36.31
88	Whitelackington	19	1 0	136	34.50
89	Ilton	7	1 3	100	32.15
90	Ilminster	5	1 0	133	34.53
91	West Coker	7	1 0	240	33.06
92	"	8	1 0	260	33.61
93	"	10	1 6	236	33.32
94	South Petherton	28	0 8	110	29.34
95	Yeovil, Mendford	9	1 0	132	32.78
96	" Summerlands	4	2 0	220	31.86
97	Blechester	13	2 0	40	28.40
98	Stowell	10	1 0	376	34.40
99	Chilton Cantelo	2	..	65	26.90
100	Wincanton	1	0 8	240	30.57
WILTS.					
101	Mere	11	1 0	263	36.91
102	Mere Down	11	1 0	702	36.41
103	Maiden Bradley	9	1 6	626	41.04
104	Donhead St. Mary	10	0 7	514	36.39
105	Broad Chalke	10	0 8	315	31.18
106	Tollard Royal, Rushmore ..	7	3 0	500	36.80
107	" " Larmer Grounds ..	6	3 0	500	36.80
HANTS.					
108	Fordingbridge, Oaklands ..	15	1 0	135	32.16
109	" " Wood Green ..	18	1 2	140	31.18
110	Bournemouth	8	1 0	134	31.23
111	"	3	1 0	100	29.75
112	"	2	1 2	123	31.08



Iwerne Church.

By the Rev. J. ACTON.

Read September 6th, 1894.



THIS parish, says Hutchins, is one of the largest in Dorsetshire ; so it was when the chapelries of Handley and Gussage St. Andrew on one side and East Orchard, St. Margaret Marsh, and Hinton St. Mary on the other were annexed to it. "More chapels and churches than they were able to maintain," says the return of the Commission of 1650, when Mr. Ilgarus Crayford was incumbent, who then received the profits of Iwerne and supplied the curé. At that time they were served each once a month, and so matters continued till the time of my predecessor, who, with the aid of Queen Anne's bounty, built the present vicarage, and was able to separate Handley and Gussage into an independent cure and to place curates in the three parishes of East Orchard, St. Margaret Marsh, and Hinton St. Mary. Since my incumbency I have been able, by the aid of my friend, the late Mr. Boucher, and Archdeacon Huxtable and the Ecclesiastical Commissioners, to form them into separate vicarages, with residences, schools, and churches restored. The church was held from the earliest time with the Rectorial and Vicarial tithes by the great Abbey of Shaftesbury, founded by Alfred. In a Charter of Eadwig, A.D. 956, it is mentioned as given

by that monarch to the Abbey, with 80 other manses, "Pro Christi amore et venerabilium sanctorum quorum reliquiæ ibidem venerantur," and then called Ywerne Minster, which points to a minster or church existing at that time. Like the Abbey, it is dedicated to St. Mary. You will see an empty niche over the south door. It was, no doubt, served by priests from the Abbey; there were remains of an ancient clergy house in the vicarage garden, the materials of which were used in building the present vicarage house and stables, the vicarage is built on the site of the principal fish pond, drained for that purpose. The spring, of remarkable strength and purity, which is the origin of the little river Ewerne, rises under the cellar floor of the vicarage and flows by a drain into the lower pond, and thence through the village to Iwerne Courtenay and Steepleton Iwerne, till it falls into the Stour under Hod Hill—the Roman Ibernium. Many great men in Church and State have held the prebend and Rectorial tithes and glebe, among them my own benefactor, William of Wykeham, as he did many other benefices in Dorset, but I have no record of his having ever officiated in the church. It is remarkable that in the reign of Edward IV. the Abbess of Shaftesbury gave the Rectorial tithe and lands to that monarch for the maintenance of his newly-built chapel of St. George at Windsor. Since then the patronage and Rectorial tithe have been enjoyed by the Royal Dean and Chapter. The speciality of the church is that, as you look round, you may see specimens of almost every date of architecture. Dear old Mr. Barnes, with whom and the late Mr. Bloxam I spent a most enjoyable hour in the church twelve years ago, insisted that the circular arch leading into the north chapel was Saxon, but *that* Mr. Bloxam would not allow, though he believed there had been a Saxon church previously to the present. He expressed himself specially struck with the pair of narrow Norman windows, with their wide internal splays, and the Early English column of Purbeck marble with foliated capital, of which he made me very proud by pronouncing it "a gem." I would also draw your attention to the other Norman window at the bottom of the north aisle. The circular window is modern and replaced one

similar to the late Tudor in the north aisle, which I was obliged to remove when building the vestry when we restored the church 23 years ago. The foliated capitals on either side the window I found stuffed into the hagioscope below, which we then opened. I believe they belonged to the early chancel, of which the other remains, now kept in the vestry, were the finials, I suppose, of the choir stalls; they were also in the same place. The only other memorial of the original chancel is the window on the north side, of two trefoil-headed lights with an elongated quatrefoil at the apex. It was originally over the vestry door and had to be moved forward. The two windows opposite are modern copies. There are also portions of the original chancel tiles found under the floor. The arches of the nave are very early Norman, quite as early as Christchurch or Romsey and Wimborne. I would draw your attention to the scolloped carving of the capitals. I compared them with those in the ancient church of St. Bartholomew, Smithfield, and found them precisely similar. They are an instance of how plaster may preserve old work. I found them completely embedded, but by careful picking and scraping the old work came out as you see it, fresh as it was 700 years ago. There was also a deep gallery, blocking the tower arch and resting on the two last capitals. I would also call your attention to the three pointed arches of the south arcade resting on Norman pillars. I have never been able to get a satisfactory explanation of the use of the niche on the capital on the north side, not even from Mr. Pearson when he was here as the architect of the south chapel added three years ago as a memorial to the late second Lord Wolverton by his widow. The window at the end of the south aisle is a specimen of the transition style and so is the window in the north aisle. I must draw your attention to the depressed arch between the nave and chancel; it is original. The beam of the rood-loft was visible above it and the remains of the steps. At our restoration the late Mr. Wyatt was very anxious to raise the arch, but I resolutely declined and was glad to have the approval of Mr. Pearson when he built the adjoining chapel, though I did not

approve of his building in the small remains of the steps to secure the strength of his arch. The pulpit is Jacobean and a specimen of what may be done by patience. It took six months' pickling to get rid of the many coats of yellow paint with which as many generations had covered it. The tower, as you see, is of later date; whether it replaced a Norman tower I know not. It has two stages, the upper having on each side a window of two trefoil-headed lights with a quatrefoil at the apex; its embattled parapet rests on a corbel table. The steeple has two bands. Hutchins writes of it as "40 feet high, and now the only remarkable one in the county since the fall of that at Wimborne and the demolition of that at the Abbey Church at Shaftesbury." But, alas! at the beginning of this century this church suffered terrible mutilations; the spire was taken down and only rebuilt to half its former height—the remainder went to repair the roads, says the tradition; the roodloft, said to have been the most perfect in the county, removed, and the ancient steps to it cut away; the gallery I spoke of erected at the bottom of the church; and the perpetrators perpetuated their deeds by an inscription over the chancel arch—"This church was beautified in the year of our Lord God, 1807, by Thomas Harvey and Christopher Senior, churchwardens." To those who are interested in bells I should be glad to commend to view our ancient peal:—1. Give laud to God. I.W., 1618. 2. O be joyful in the Lord. I.W., 1613. 3. Huic, ecclesie, dedit, Tertia, Sit, Bona, sub, Jesu, nomina, sona. Very old, supposed by Mr. Eyton and Mr. Ellacombe the beginning of 15th century. Very difficult to construe. I thought Tertia might have been an abbess, but she is not in Dugdale, so I conclude that it is the 3rd or Jesu bell. 4. Fear the Lord. 1609. 5. My treble voice makes hearts rejoice. 1768, Abraham Bilbie. The churchyard must have been in old times much more extensive, as large numbers of bones were found in the garden on the other side of the road some 40 years ago, and lately, when making the foundation of the cross in the newly-taken-in-ground, the remains of interments were found beneath it.



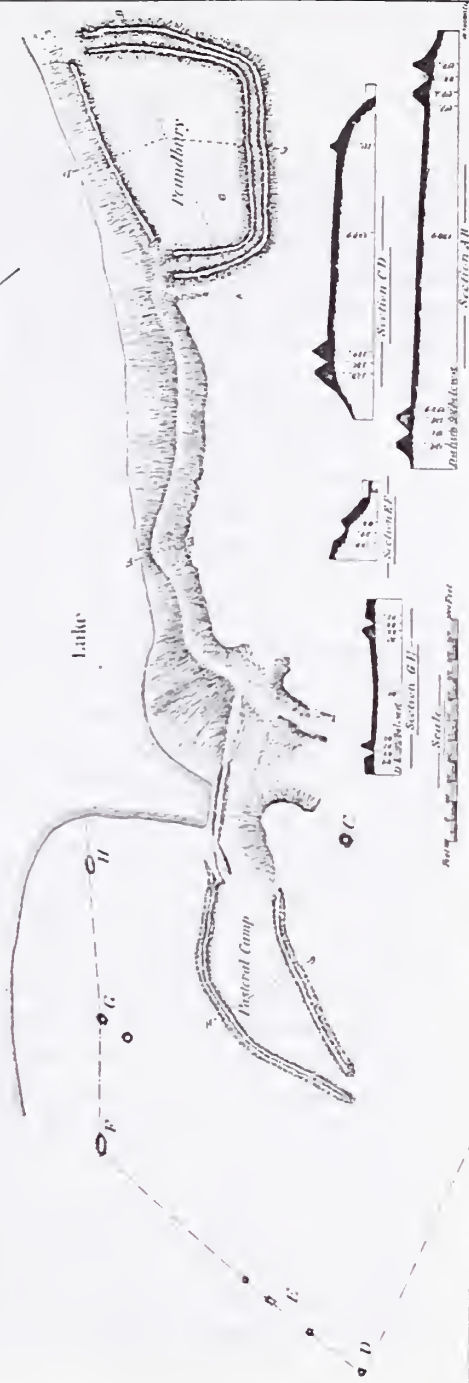
Houndbury: The Pastoral Camp and the Old Junium of Ptolemy.

By E. CUNNINGTON, Esq.



BEFORE the Roman Invasion by Julius Cæsar, in B.C. 55, this country was completely a *terra incognita* to the civilised world, and Cæsar gives us, in his Commentaries, only a report of what he saw and did in Essex and Middlesex in 55 and 54 B.C. During the reign of Claudius, in A.D. 43, England was again invaded under Aulus Plautius, Vespasian, and his son Titus. Vespasian is reported to have conquered the Isle of Wight, to have had nine years of perpetual warfare, in which he fought thirty battles, subdued several tribes, and occupied twenty towns. We can take it as agreed that the Romans on first landing had to encounter the Belgæ on probably the whole South of England; these conquered, became in years after their allies, and I may say that I have found proofs of their existence on the South of Monkton, Upwey, &c., in their flint implements, or, rather, their imported stone implements. It appears to me that the most ordinary and likely course of the Roman Invasion in this part of England was helped by levies brought by sea, and Weymouth was one of their ports. We will now consider the condition of the country as it was previous to this Roman Invasion. Claudius Ptolemy, the celebrated astronomer and geographer of the second

MAP DEFINING THE AREA OF THE DUNION OF PTOLEMY, EMBRACING POUNDBURY AND THE PASTORAL CAMP (OF MR WARNE), BOUNDED ON THE NORTH BY THE LAKE 3 MILES LONG AND ABOUT $\frac{1}{2}$ MILE BROAD, AT THE TIME OF ACTUAL OCCUPATION, AS DEDUCED BY MR E. CUNNINGTON FROM THE EXCAVATIONS AND INVESTIGATIONS MADE BY HIM IN THE NEIGHBOURHOOD.



C. General Runnings Barrow. From Whitfield. D. Burrow not opened with trees. These barrows near together included the Rev. Mr. Ashby, F. Long Barrow in the G. Barrow and But Hole in west field. H. Burrow in Mr. Middleton's field. From Whitfield.

century, A.D. 139 to 161, mentions Dunium—*Δουνιον*—as a town of the Durotriges. Its locality does not appear to have been identified, and an enquirer soon finds himself confronted by the many difficulties that have arisen naturally from the effacements of eighteen or nineteen centuries, together with the changes effected by modern civilisation. We can expect to find but few remains of its first inhabitants, for their bronze implements have either been applied to other uses or become decomposed, so sharing the fate of yet more perishable material. In fact, we only find flint implements, and these on the surface or just under it, and their number diminished by "handpieking" for road making. The physical condition of the district previous to the Roman Invasion must be carefully investigated. There can be no question that for about three miles north of Dorchester extending east and west was a large lake nearly a mile in breadth, fed by the Frome and its tributaries from Cerne. The former area of this lake was sufficiently defined by the floods of 1879. It was bounded by the high ground both to the west of Bradford Peverell and again about a mile to the east of Dorchester. This lake constituted not only the northern boundary of the whole of British Dunium, but also that of Poundbury, its fortress. Poundbury was unquestionably the British fortress; the northern part bounded by the water had only one small rampart. The west, east, and south sides had two valla, and the depth of the fosse was originally twenty-five feet and measured eighty-six feet across from point to point of the valla. On the west side the two valla still indicate the original design, but the earth has been worn down by the wear and tear of many centuries, filling up the fosse eight feet and thus concealing the originally fine proportions of this earthwork. Immediately after this camp was taken by the Romans, the outer ramparts on the south and east were destroyed, as can be seen by a walk round. In all my excavations in Poundbury and between the western ramparts nothing but British pottery and various flint implements have been found, whilst between the valla, where the earth was thrown back by the Roman conquerors, Roman pottery and a

Roman spur were found. Just beyond the south-west corner of Poundbury in a spot indicated by Nature as affording shelter, with easy access to the water and also, in time of war, to the fortified camp, lies the pastoral camp mentioned by Mr. Warne. This camp appears to have had direct communication with Poundbury by the trackway still so plainly visible on the north side, and terminating at the north-west corner and carefully concealed from observation by being kept below the summit of the hill throughout. To the South and East of these two camps the inhabitants of the Dunium district built their huts and cultivated their ground, and the boundaries have been carefully traced and frequently verified by means of objects found sometimes on, and sometimes below the surface. Whilst making the new Charminster-road in 1840, 6,000 loads of chalk, &c., were taken from near the north-west corner of Colliton Park—viz., within these boundaries—and two fine British bronze armlets and two bronze celts were found. On the east side of Glyde-path-hill, under the remains of the tessellated pavement of a Roman villa, many well-worked flints and serapers were found and several more in the old fair ground. Catlin in his work on the North-American Indians mentions that their interments are generally made around and outside their settlements. Such appears to have been the custom among these Celtic tribes, and the western boundary of Dunium may still be traced by the line of barrows extending from Mr. Middleton's barrow just above Frome Whitfield, to the one with the trees on it belonging to Mr. Alfred Pope. On the east side of this line I found plenty of celts and other really good flint implements, but none outside the line. Then the line tends eastward south of the new buildings called Poundbury Farm, across to the Union-house, and gradually curves round to the water at East Fordlington.

Part of the Roman embankment was levelled in 1864, and here two barrows, both bell-shaped and only two feet apart, were found. That they were long anterior to the Roman embankment was shown by the latter covering them to the depth of two or three feet. In one, an urn with cremated bones was found, and in the sides several

skeletons, buried sometimes singly and sometimes two or three together. The skulls were examined by the late Dr. Thurnam, who pronounced them to be decidedly ancient British. These two barrows were on the south-east boundary of Dunium. This area, embracing the present Dorechester, agrees with what Mr. Roach Smith, F.S.A., says in his work *Collectanea Antiqua* (Vol. XII., Page 204),—"All the towns both in Britain and Gaul, which were the capitals of tribes or people, were substantially walled, and this I believe in every instance can be proved by remains more or less visible at the present day. Our readers will allow how true this is of Dorchester, the Roman Durnovaria, where remains of its old Roman walls can still be seen." The Antonine column raised to commemorate the victories of Marcus Aurelius over the Marcomanni and other German tribes, has amongst its other bas-reliefs, one representing their huts. These huts would doubtless represent the dwellings which were in use with the Durotriges. The only one found was that opened at Frome Whitfield, March 29th, 1880; the long barrow is in the next field to the west of it. The inside diameter of this hut-hole was 16 feet. At three feet from the surface a quantity of ashes was found resting on a hearth of about 22 inches diameter. It must have been used very much, as it was two inches thick and very hard and compact. In the composing soil were found thirteen well-made flint serapers, six flint knives, a long triangular-pointed flint, and a piece of incised British pottery.

In 1886 a trench was cut across the north side of the Pastoral camp in the fosse. The base of this ditch is 6 feet 6 inches under the present turf; the breadth across from vallum to vallum at present is 28 feet. Taking the apparent depth of fosse and adding 6 feet 6 inches, and also 3 feet for wear and tear of twenty centuries, the original depth would be 14 feet. Although several excavations have been made very little has been found, the most important being two small pieces of British pottery, a few worked flints, and bones of ox and sheep. That this was covered by a wood previously is, I think, proved by finding large numbers of common snails, *Helix aspersa* and *Helix nemoralis*, in the diggings. The alluvial

soil is more than 4 feet deep in the centre of the camp. It is of irregular conical shape, the point at the west ; the base being 513 feet long. The breadth near the centre nearly north and south is 346 feet. In Celtic times the ends of the ramparts or valla would have been close to the then higher level of the water.

The Durotriges we must now think of. They occupied about 30 miles square, or, roughly speaking, the same area as Dorset, their camps being Poundbury, Wareham, Dudsbury, Spettisbury, Hodd Hill, &c. Vespasian, it is said, conquered the Isle of Wight. We have no means of following his campaign, but we know the Romans to have been at Weymouth, and we equally know that they came further north. We see Maiden Castle in the way. Who made it ? At the meeting of the Archæological Institute in 1865 General Lefroy said "That he considered that these earthworks manifested evidence of organisation of labour or continuity of purpose far beyond what the scattered and the divided tribes with which they connected the county were capable of." General Pitt Rivers says, after a careful inspection, "This is the work of disciplined forces under competent leaders ; the traverses and demi-lunes are marvellous specimens of engineering skill." It is worthy of remark that the gradients of the ascent of the hill south and east are most easy up to the entrenchments, being six feet in 100. Part of the north side only has an ascent worth mention, about 20 in 100 ; the west side is protected from the still higher ground above it by the finely executed series of traverses. The north side is rendered conspicuous by its triple defences, the fossæ of which, when first constructed, were 90 feet in depth. Was this made by the Celts or Durotriges, and, if so, for what purpose ? They had Poundbury, &c., and others, and for what conceivable purpose should they fortify Maiden Castle against themselves ? No, Mr. President, I think Nat Seal, the Fordington old shepherd, gave me a correct answer when I asked him who made Maiden Castle : says he, "The Romans made this, sir ; they was double-jointed people as strong as 'orses." It has been objected that the Romans would not have made such defensive works and would not have required

them. To this must be replied that the Romans were noted for their earthworks. At the siege of Avaricum in Gaul, Julius Cæsar raised in 25 days an agger 330 feet broad and 80 feet high. This was B.C. 52. Titus, who came to Britain with Vespasian, made a vallum six miles long in six days round Jerusalem. Josephus quotes from one of his speeches as follows :—It was needful for him to encompass the whole city round with a wall, for so all ways and passages might be blocked up; and if anyone think that work difficult and not to be achieved let him consider that it did not become the Romans to make a base and slender piece of work, and that no man in the world could without labour effect any great matter, but God only." "This wall was nine and thirty furlongs about, and all this whole work was finished in three days' space, which yet required months to have been built in; so that the celerity in the building thereof makes it scarcely credible." But Dorchester itself is a sufficient monument of their prodigal expenditure of physical strength, as exhibited in its encircling wall of 12 feet in height and 12 feet in thickness, in addition to its fossæ and valla of the extraordinary breadth of 191 feet. I have proved by explorations that Dungen or Castle Hill, near Alton, was made by the Romans; I am almost as certain that Cadbury is Roman. The three fortresses are about equidistant in a line north; each one in the same commanding situation facing north, east, and west. Without very strongly defended centres the Romans would have been powerless. The English, with all their modern appliances, were at Ekowe, in Zululand, in 1879, similarly circumstanced. It was from these centres that they each time organised fresh offensive movements and sent out exploring parties in every direction. Mr. J. H. Forbes, in a paper entitled "A Ride in the Great Sahara," says "The tent was pitched amidst the ruins of a Roman city whose name is unknown, but is called Euchir Titten by the Arabs. It is situated in a remarkably strong position, commanding the access to a mighty plain, from which passes one of the tracks to the Great Sahara. Truly these Romans knew what they were about when they chose their strategical positions, using

them also as heliographic stations." The Romans undoubtedly lived for a long period at first in a condition little better than their British neighbours ; nor could it be otherwise, for the resources of the Island were then undeveloped, and, what is more, unknown, and the existing means of communication afforded but small facility for transport. The name " Maiden " as applied to this camp would mean the fortress never taken, the Saxon " Mæden " for Maiden, and nothing more probable than that the Saxons finding this place as it was in their time should so name it. The area of the camp is between 30 and 40 acres, or 2,376 feet long by 825 feet broad. At the south side of Maiden Castle there was reported to be a cavern extending a long distance underground. This has been proved never to have existed, but to make the entrance in at this point a large quantity of very hard chalk was cut through. The outer northern vallum was protected by a stone wall ; the stone pillars constituting the western gateway have been removed within the memory of man, as attested by two old labourers who were brought forward by the late Rev. E. Ludlow on the occasion of the visit of the Archæological Institute in 1865. I had previously, whilst digging, discovered the stones forming their foundations. The clay at the western end has been largely used in making tiles, pottery, &c., on the spot, the remains of this pottery varying in some places from four to five feet in thickness. The same kind of ware may be made from the clay left in small heaps by the potters. Many spaces neatly paved with Ridgway stones occupy the part probably used for stables, as Mr. Gough shrewdly suspected. In August, 1882, excavations were made in the north-west corner of the camp, resulting in uncovering 86 feet of the stone foundations of a Roman villa of large dimensions, as shown in the plan herewith. Also a small portion of black and white tessellated pavement ; several specimens of the coloured encaustic mortar with which the inside walls of the rooms had been decorated of various colours and patterns. The greater number of coins have been found here, dating from Antoninus Pius, A.D. 138 to 161, to Theodosius, A.D. 346 to 396.



Fiddleford.

By H. C. DASHWOOD, Esq.

Read September 6th, 1894.



FITTLEFORD is described in "Hutchins' History of Dorset" (edition of 1815) to have been an "ancient mansion house," and a farm belonging to it was in the parishes of Belchalwell, Child Okeford, and Okeford Fitzpaine; this was an error. The farm was in the parishes of Okeford Fitzpaine and Sturminster Newton; 32 acres in Sturminster Newton and 51A. 1R. 4P. in Okeford Fitzpaine; but the hamlet of Fiddleford was partly in Belchalwell, Child Okeford, Okeford Fitzpaine, and Sturminster Newton. The situation is on the south of the river Stour and one mile and a-half on the south-east of Sturminster Newton. Mr. Coker, in his Book (page 100), says "It anciently acknowledged for its lord, William Latimer, descended from a younger branch of the Latimers, of Yorkshire, whose only heir was long since married to Spencer of Devon, but it now giveth habitation to the Wites, unto whom a good alliance came by the heir of * Nicholas Martin, of Athelhampton. S H. VI Nicholas Latimer, of Fittleford, occurs in an old deed." In the remains of the old house, on the door ways and other places, may be seen the fleur-de-lis—see "G. Willms' Heraldry," edition, 1724. The arms

* The White who married the daughter and co-heiress of Nicholas Martin was the great grandson of Thomas White, the Poole merchant, who founded the family of Wites or Whites.

of the Latimers appear to have been Gules a cross flurte or, on a bend azure, three fleur-de-lis, of the second by the name of Latimer. The crest is not that of the Whites, whose arms on an achievement formerly in Okeford Fitzpaine Church were azure on a bend, Or, three crosslets, sable, white, impaling, argent, on a bend sable, three annulets, Or, St. Lo. The White family appears to have married into the St. Lo family, as Dorothy White, the wife of Christopher White, was a daughter of Edward St. Lo; she died 1744. This Christopher White sold a part of the Fiddleford property to the Freke family, and his ancestor, Thomas White, had previously sold another part, by which it afterwards came to the Pitts, of Stratfieldsay.

10 H. VIII Thomas Dautrey held the manor of Fittleford or Fettleford, a fishery on the Stour, and lands there and in Sturminster Newton and Okeford Fitzpaine of the Abbot of Glastonbury; afterwards it came to the Whites.

In the reign of Elizabeth the manor of Fittleford was in the hands of the Crown and was conveyed to Thomas White, Esq. The old minute of the record is thus:—"Michaelis Record 19 Eliz Rot 42 De manibus regina amovendis de maneria Fettleford in com Dorsetiæ ac Thomæ Whyte am liberando." The pedigree of the White family commences with the name of Thomas White, of Poole, and was drawn up about 1565 in the reign of Queen Elizabeth, whose son, Thomæ White, of Fittleford, died previously on 28th December, 4 Philip and Mary, seized of the manor of Fettleford held by socage and seven shillings rent of the manor.

The inscription on the mill appears, by the date, to have been placed there in the 8th year of the reign of Queen Elizabeth, it is presumed by Thomas White; and is as follows:—

"Operam dedi 1566 meis sump's alienis." He that wyll have here any thyng done, let him com fryndly he shall be welcom; a frynd to the owner, and enemy to no man, pass all here freely to com when they can, for the tale of trothe I do alway professe; myller be true, disgrace not thy vest. If falschood appere the fault shall by thyne, and of sharpe punishment think me not

unkind. Therefore to be true yt shall thee behove to please God chiefly that livithe above."

There is a date given on the base of the chimney stack of the old house as A.D. 1558.

The farm and mill have been held by the following tenants:—

Fiddleford Farm—1767, Charles Andrews ; 1795 to 1822, John Newman ; 1822, George Newman ; 1834, John Phillips ; 1835, Robert Goodfellow ; and 1863, John Coate ; and now by John and Frederic Coate.

The mill—1750, Mrs. Dyls ; 1760, Robert Pitt ; 1787, John Newman ; 1800, John Newman ; 1814, John Newman ; 1853, Henry Newman ; 1855, Job Rose.

The ceilings in the room downstairs and also in the room used as a bedroom of one of the cottages show the age and date of the buildings. The chimney pieces also require attention and the ornaments of them. The letter W and a fleur-de-lis sculptured on the doorways. The fleur-de-lis certainly belongs to the Latimer family. About forty years since, in altering the cottages, on removing the hearthstone in the fireplace in the bedroom, which had sunk down, a hole was discovered and a well, which went from the fireplace to the foundations, which was examined, but only a few bones and dust was found. This hole was afterwards stopped up, it is believed.

Attention is called to the small room behind the chimney in the bedroom, the remains of an old gateway are seen in the wall at the entrance to the gardens, and the house appears to have extended some distance into the field on the south side, as many large stones were discovered there years since.

The present miller's house is a different building, and was, no doubt, erected from the materials of the old buildings.

Fifty or sixty years since the traces of a garden and a pond in dry weather could be seen in the field on the south side towards the coppice called "Girdles" or "Gurdley" coppice.

The late Mr. Edward St. Lo, when fishing at the bottom of the coppice some fifty years ago, found a valuable ring with a crest thereon embedded in the clay of the bank.

It may be mentioned that the farm and cottages when in the tenure of Charles Andrews in 1767, and subsequently of the Newman family, were supposed to be a great depot for smuggled goods, as the tradition is that the large farmyard and stall which adjoined on the east side were used for that purpose, and both Andrews and his successor were requested always to keep the barton and stalls well supplied with hay and straw and not to remove it until all was safe. The Ridout family, who lived at Okeford Fitzpaine, were supposed to have been connected with the importation of these goods, and a horse was well known as "Ridout's Stumpled Tail" belonging to one Roger Ridout, who seems to have been employed as the leader of the horses for many years. The writer's late father stated that when a boy, in or about the year 1794, he had, when riding (with his father) late at night, seen the string of horses in the narrow road between Okeford Fitzpaine and Fiddleford with the kegs and other contraband goods on the horses. One or two men, armed, generally were in front and then ten or twelve horses connected by ropes or halters followed at a hard trot, and two or three men brought up the rear. This cavalcade did not stop for any person, and it was very difficult to get out of their way, as the roads, until the turnpikes were made in 1824, would only allow of one carriage, except in certain parts. The contraband goods were principally brought from Lulworth and the coast through Whiteparish and Okeford Fitzpaine, through the paths in the woods to Fiddleford, and thus distributed.

It may be mentioned, in conclusion, that the farm was held under the Abbot of Glastonbury, and that the tenants have always claimed exemption from church rates and the right to repair the Fiddleford aisle in Sturminster Newton Church, to which aisle there was a separate entrance to the church down to the year 1827. When the church was rebuilt by the late vicar, the Rev. Thomas Henry Lane Fox, and subsequent to that date, the tenants of the farm have refused to pay church rates.



The Commonplace Book of a Dorsetshire Man
(A.D. 1625-1635.)

COLLECTANEA WHITEWAY (*Camb. Univ. Lib.*
Press Mark, Dd., xi., 73.)

By the Rev. W. MILES BARNES.



IN VOL. XIII. of the "Proceedings" of the Dorset Antiquarian Field Club will be found extracts from the Diary of William Whitway, of Dorchester, transcribed from the MS. in the British Museum Library. His Commonplace Book, which in Hutchins' time was in the library of St. John's College, Cambridge, but has since been lost sight of, has been found in the Cambridge University Library; the librarian states that it was among the MSS. presented to the Library by George the First. This book, amongst other matters of local interest, contains a "Private chronology," which gives particulars of the Whitway family, who were so closely associated with the history of the town of Dorchester in the 17th century.

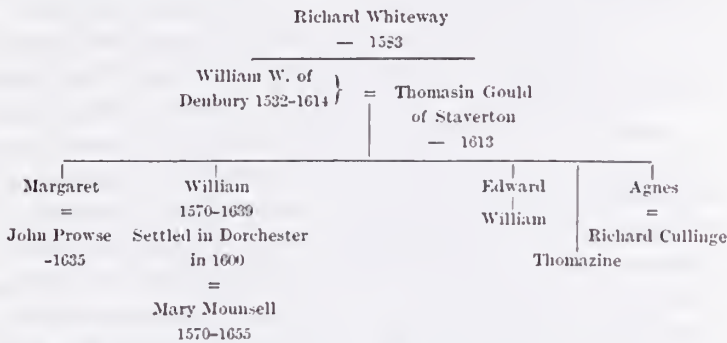
The chronology makes it clear why it has been so difficult to identify the William Whitway, the writer of the diary; there were several generations of William Whitways. His grandfather, born in 1532 (died in 1614), was a William Whitway. His

father, born in 1570, was a William Whiteway ; he, the writer, was a William Whiteway ; and his son, born in 1622, was a William Whiteway ; and there has naturally been some little confusion between the several William Whiteways.

The writer of the Diary and Commonplace Book was born in 1599 ; in 1600 his father removed to Dorchester, and six years later he was sent to the Grammar School, where, judging from the extracts from classical authors in the Commonplace Book, he received a sound classical education under Robert Cheeke, who was at that time the master of the school. In 1614, the year after the great fire, he went to Oxford with Mr. Cheeke, and in the following year he left school possibly to follow his father's business ; what that was is not certain. The manufacture of cloth was at that time one of the principal industries of the town ; the cloth made at Dorchester was highly esteemed in the West of England and beyond. It was shipped in considerable quantities by Dorchester merchants to France and elsewhere ; and we have some grounds for assuming that the Whiteways were in this line of business from William Whiteway's anxiety about the tax on wool (Diary), from the blank forms of certificates for cloth merchants travelling in France (he made his first journey to France in 1616, *Collectanea*), and from some casual remarks both in the Diary and in this book ; but whatever business the Whiteways followed it appears to have been successful, for in 1610 the elder Whiteway bought Cary Mills, in 1618 he purchased an estate at Woodsford, and in 1626 the Ashton property near Martinstown. Success in trade was followed by success in life generally.

The arms of the Whiteways will be found sketched in pencil in the MS. copy of the Herald's Visitation of Dorset (A.D. 1623) in the Dorset County Museum. R. S. Whiteway, Esq., a descendant of the Whiteways of Dorchester, informs me that William Whiteway, our author's father, came to Dorchester from Denbury, a village in Devonshire. On William Whiteway's death there were living of the family a son William, born in 1622, and his twin brother, John and Samuel, born in 1614. John was

M.P. for Dorchester in 1654, 1656, and 1660. John was in 1654 one of the executors of the will of Colonel Jas. Hearne, at one time Lieutenant-Governor of Jersey, and he had a son baptized in 1658 by the name of Peter. Mr. Whiteway has given me a short pedigree of the Whiteways sent to him by Mr. Baring Gould, a portion of which is derived from the Gould pedigree edited by Lieut.-Colonel Vivian.



William Whiteway, junior, was Bailiff of Dorchester for the first time in 1628, for the second time in 1632, in which year he was also chosen feoffee of All Saints, Dorchester, and his father was Mayor of Dorchester in the previous year; two years later he died. The Diary was commenced in 1618, when he was 19 years of age.

The earliest dated entry in the Commonplace Book is a coat of arms, possibly Whiteway's own, on the title page, with the date 1623; beneath this is a list of books, "materialls for the History of the Reigns of K. J. and K. C. (King James and King Charles)."

Then follow extracts from various Latin and Greek authors and from historical and other works.

After these are several pages of "Directions for limning and instructions in painting by Maister Charles Gage, peinter," date 1633. A little further on is a paragraph headed "Mr. Shervill's Censures," from which it appears that Mr. Shervill was Recorder of Salisbury and chief of the vestry of the parish in which he lived; he was instructed by the vestry in 1632 to take down some images painted in the window and "to set up new glass to make the

church more lightsome," but passing by with a stick in his hand he broke the window and defaced a picture representing the Holy Trinity, for which Dr. Lin, the Chancellor, "drew him into the star chamber," where his cause was heard the 6th and 8th February, and he was sentenced to be fined, imprisoned, and censured publicly. He was fined £500, but the King remitted the remainder of the sentence.

"A Certificate for France." On page 79 is a peculiar document; it is a blank form of certificate on the model of a Royal letter patent, commencing "*omnib' xri fid' et lib' ad quos hoc p'ns script' perven'*" from the Bailiff and capital burgesses of the town of Dorchester, certifying that N.N. and N.N. of Dorchester, merchants, were conveying sundry loads of cloth "*diversas sareinas panni*" to the town of Weymouth and Melecombe Regis, thence to be shipped to Rothom? (Rouen in France), and the aforesaid Bailiff and Burgesses, at the earnest request of the said merchants, wished to make it clear that N. and N. were "*habitantes et residentes*" in the town of Dorchester aforesaid, and that they were free "*ab omni morbo lethali et contagio*," for which they thanked God.

Commencing on page 89 is the most valuable item in the book, a private chronology of William Whiteway, which is transcribed at length beneath.

On page 102 is the charter of Hen. viii., followed by that of S James, A.D. 1610; these translations of charters, as well as "*Diploma novum Caroli Regis anno quinto Regin sui M Brit, 1629*," on page 327, relate to the town of Dorchester, and as the originals are preserved amongst the municipal records it is unnecessary to say more about them. A full account of this charter is given on page 124 of Savage's "*History of Dorchester*."

The charter is followed by a copy of "an Act for the annexing of the Rectory and decayed parish of Froome Whitfield to the Rectory and Parish of the Holy Trinity in Dorchester, 7 Jacobi, 6th Feb. Anno Domini 1609." This Act was printed by Savage ("*History of Dorchester*," page 186, et seq.), as he believed, for the first time.

The contents of the remainder of the book are:—Page 133, verses in French and verses on the Duke of Buckingham; page 144, a dictionary, probably the one referred to in the Diary; page 304, “a libell found at the court and presented to the King by the Bp. of London, Dr. Lawde, 8 March, 1628;” page 305, an epitaph; page 306-308, a table of herbs; page 309, the maiors and shriues of London, A.D. 1189-1637; page 326, Aldermen of London and their wards, A.D. 1633. After which come the before-mentioned diploma, four Psalms of David, and under date July 8, 1634, “nomina vicecomitum comitatum Dorsett et Somersett,” from Hen. V. to 1567; afterwards carried on to 12 Caro.

On reversing the book and commencing at what was the end some pages of anecdotes will be found concerning various persons: Bancroft, Hadocke, Sir F. Bacon, Serjeant Richardson, Henry Prince of Conde, King James, Doctor Butler, and others, anecdotes mostly of a mild type. Page 10, “The inscription of the Gaol of Dorchester, built Anno 1625,” some Latin verses, &c.; page 60, extracts from Holinshed relating to the history of Ireland and Scotland, and from the Netherland history of E. G.; and, lastly, a copy of “a letter sent by a friend to Sr. Thos. Hedley, Kt., sergeant-at-law, containing a relation of the reported nunnery at Gidding, in Huntingdonshire.”

Amongst the anecdotes are some relating to Dorset people, of which are the following:—“An officer of the custome at Melcombe (Melcombe Regis) went aboard a ship to search, and pceived a good quantity of leather (a commodity upon which duty was payable) and said to the owner that stood by ‘What do I see yonder; methinks I see leather.’” The merchant said nothing, but clapt two pieces of gold before his eyes and asked him what he did see now? The officer said ‘Nothing’ and sware that gold was the worst metall in the worlde to make spectacles.”

“Mr. Hobson, Town Clerk of Dorchester, one day going to Weymouth to plead in their Court with his black box of writings some good fellowes got him into an alehouse by the way, and while he was drinking took out his papers and filled his box full of bees

that had newly swarmed. When he came to the Court and opened his box the bees flew out with such a hum that the Maior and all the rest ran out of the hall about the streets with the bees about their ears, which peppered many of them."

"Mr. Tregonwell, some time gentelmen of the Bedchamber to King Hen. 8, when a company of Cornishmen came to the King with a petition about some abbey land, he asked what they would have, and when they refused to impart their busynes unto him he waited till the King came forth, and when they kneeled downe to put their petition he kneeled downe with them; and when they thanked the King for granting their request he also thanked the King with them and afterwards went to them and told them he did look for a share in that the King had granted them, whatever it were. They refused, whereupon he went to the King and crost all that the King had granted them. Then they came backe again to the King and told him how one of his gentelmen went about to crost that w^{ch} his ma^y had so gratioously bestowed upon them. The King told them that it was very reasonable that he should have a share with them, for it was for his sake especially that he granted their petition, thinking at that time that he had had interest in it, and wth all counselled them to give him content.

But Tregonwell dealt so effectually with them that he drew from them a faire estate, and from him are descended the Tregonwells of Dorsetshire."

A PRIVATE CHRONOLOGY, AUG. 2, 1634.

1518. My great grandfather, Peter Mounsell, was born.

1532. My grandfather, William Whiteway, was born.

1547. My grandfather, John Mounsell, was born.

1557. My great grandfather, Peter Mounsell, died.

1568. My grandfather, John Mounsell, was married. (1)

1569. Thos. Harvey, Esquire, built the free schoole.

1570. My father, Mr. William Whiteway, born.

(1). John Mounsell married Joan, the 3rd daughter of John Pitt, of Causeway, and Margaret Lauze, of Sherborne. (Hutchins, vol. 2, p. 420).

1570. My vnkle, Walter Harvey, married E. Pitt. (2)
1571. My father, Mr. John Parkins, born.
1572. The great massacre at Paris.
Waymouth and Melcombe Regis were united.
1573. My unkle, Peter Mounsell, born.
1574. Mr. John Mocket married my aunt, Elenor Mounsell. (3)
1575. Mr. John White, preacher, borne.
My aunt, Margaret Middleton, borne.
1577. A blazing star appeared.
My unkle, William Mounsell, married Joan Mocket.
Richard Mocket, Dr. of Divinity, borne.
My aunt, Joane Bateman, borne.
1578. My unkle, Henry Pitt, married Mary Moore. (4)
1579. My grandfather, Mounsell, built his house at Milton.
My mother, Mary Whiteway, borne.
1581. My unkle, Mr. John Mounsell, borne.
Mr. Henry Waltham was borne.
1582. The united founded their comonwealth.
The Pope reformed the Calendar.
1583. My mother-in-law, Mrs. Wilmot Parkins, borne.
My great grandfather, Richard Whiteway, died.
1584. My cousin, Joan Mocket, was borne.
1585. My father, W. W., came first to Dorchester.
1586. Mary Queen of Scots beheaded.
My grandfather, John Mounsell, died.
1587. My cousin, Abraham Mocket, borne.
1588. The invincible Armada overthrowne.
Mr. Thos. Barfoot married my grandmother, J. M. (see
above, 1568).
My cousin, Mr. Denis Bond and his first wife J. G.
borne. (5)

(2). Nov. 4th (Hutchins).

(3). Sept. 15. See Radipole Registers. (Hutchins, vol. 2, p. 480).

(4). ? Mohun. Henry Pitt married Mary, daughter of Robert Mohun,
of Fleet (Hutchins).

(5). J. G. is Joan Gould (see Gould Pedigree). v

1589. The voiage to Portugal.
 My unkle, Richard Pit, married his second wife.
 Mr. John Pitt. of Lanehouse, married. (6)
 My cousin, Mr. John Gould, of Upway, borne.
1590. My father, W. W., was prisoner in Hontleur for Rell
 (religion).
1591. Mr. Robert Middelton married my aunt, J. M.
 My father was released out of prison by the League.
1592. My cousin, Jane Bateman, borne.
 My great grandmother, Joane Mounsell, died.
1593. Henry Prince of Wales borne
 Co. Hugh Middelton borne.
 Co. James Gould, of Dorchester, borne.
 Mrs. Rachel Parkins, my mother in law, borne
1594. Mr. Robert Bateman married my aunt, J. M.
 Mr. Thomas Waltham borne.
1595. Mr. Robert Cheeke, schoole master, came to Dorch.
1596. The voiage to Calis by the E of Essex.
 Mr. James Ash was married.
 My cousin, Elias Bond, borne.
1597. The timber bridge built bet. Melcom and Weymouth.
 My cousin, John Ash, borne.
1598. My father, Mr. W. Whiteway, married my mother. (7)
 My cousin, Joseph Pit, borne. (8)
 My cousin, Benjamin Pit, borne.
 My cousin, Robert Middelton, preacher, borne.
1599. My cousin, Richard Bateman, borne.
 My cousin, Edward Ash, borne.
 William Whiteway borne.
1600. Charles, King of England, &c., borne.
 The battle of Newport won by G. . . . M. . . .
 My father, W. W., came to live at Dorchester.

(6) John Pitt married Alice Ash, of Westcombe (Hutchins).

(7). Nov. 16, see Radipole Register. (Hutchins, vol. 2, p. 480).

(8). Joseph Pitt, son of John Pitt (see 1589).

1601. Lewys the 13 French King borne.
 1601. My wife, Elenor Parkins, borne.
 1602. Queen Elizabeth died ; K. James succeeded.
 My aunt, Joane Bateman, died.
 My sister, Margaret Walker, borne.
 1603. My cousin, Peter Middleton, borne.
 My cousin, Doreas Pitt, borne. (9)
 My sister, Mary Whiteway the 1, borne.
 1604. Philip 4, King of Spaine, borne.
 My brother, William Parkins, borne.
 My eousin, Philip Bond, now Brag, borne.
 1605. The Gun powder Treason diseouered.
 Mr. John White came to Dorchester.
 The new church built at Melcome.
 1606. I went first to the Grammer Schoole Co. W. Pat^r borne.
 1607. My vnkle, Edward Gould, died.
 My grandmother, Joane Barfoot, died.
 My vnkle, Henry Pitt, died.
 My cousin, William Gould, of Exon, married A. T. (10)
 My brother, John Parkins, borne.
 1608. My vnkle, John Mounsell, married M. A.
 My cousin, Bernard Toope, married Margaret Pitt.
 My sister, Elizabeth Bull, borne.
 I rode first into Denon.
 1609. Mary Queen of England borne.
 Dorchester incorporated by King James.
 A truce between Spaine and the States.
 1610. Henry the 4, French King, killed.
 Thomas L. Vescount Bindon died.
 My grandfather, Thomas Barfoot, died.
 My aunt, Margaret Middleton, died.
 Co. Denis Bond married Co. Joane Gould.

(9). Doreas Pitt, daughter of John and Alice, married in 1634 Henry Evans, of Taunton.

(10). Alice Taylor. (Gould Pedigree).

1610. Co. Joane Mounsell, now Sampson, borne. (11)
My father, W. W., bought Cary Mills.
1611. My grandfather, Mr. John Chappell, died.
My grandmother, Thomasin Whiteway, died. (11a)
My sister, Mary Whiteway the 1, died.
My Co. John Bond, of Cambridge, borne.
1612. Henry Prince of Wales died.
The Palsgrave married the Lady Elizabeth.
My cousin, Onesiphorus Bond, borne.
My vnkle, John Mounsell, went into Ireland.
1613. Dorchester burnt the 1 time.
Old cousin, James Gould, died at Bathe.
1614. My grandfather, W. Whiteway, died.
My brothers, Sam and John Whiteway, twins, borne.
The nullity between the E. of Essex and his wife.
I went to Oxford with Mr. Checke.
1615. I went away from the Grammer Schole.
King James was at Corfe and Lulworth.
My vnkle, Walter Harvey, died; Co. John Hill married.
My vnkle, Peter Mounsell, died.
My sister, Mary Whiteway the 2, borne.
Sir Robert Napper's Almhouse built.
1616. My vnkle, Mr. Robert Middeltop, died.
My cousin, Peter Mounsell, borne.
My cousin, William Bond, borne—my Pleurisy.
My first journey into France.
The hospital in Dorchester built.
1617. King James went into Scotland.
Anne Queene of England died.
Sr. John Williams, Knight, died.
The Marschall D'Aners (?) killed.
Mr. Matthew Chub died.
My mother in law, Ms. Wilmot Parkins, died.

(11). Sampson or Simpson.

(11a). The Denbury register gives the date of her death A.D. 1613.

1618. A blazing star appeared.
 The wars in Germany began.
 The new schoole built in Dorchester by R. C.
 Sr. Walter Rawlegh beheaded.
 My father bought an estate in Woodsford.
 My brother, Nathaniel W., born and died.
 My cousin, Margaret Toope, died.
 My cousin, John Gould, of Upwey, married S. E. (12)
1619. My brother, James Whiteway, borne and died.
 The lottery for Virginia.
 My cousin, Margaret Mounsell, borne.
1620. Mr. Thomas Simonds married my Co. M. Middleton.
 The famous battle of Prague.
 My grandmother, Mrs. Elinor Chappell, died.
 My vnkle, Richard Chappell, died.
 My cousin, Joane Bond, died.
 William Whiteway married Elenor Parkins.
1621. Philip 3, King of Spain died.
 Albertus Archduke of Austria died.
 The truce between Spain and the states expired.
 The Court of Freemen established in Dorchester.
 My father, Parkins, married his 2 wife, R. C. (13)
 My daughter, Mary White-way the 1, borne.
1622. My vnkle, Richard Pit, died.
 The second great fire at Dorchester.
 My Co. Denis Bond married his 2 wife, L. F.
 Mr. Rob. Walker married my sister, Mary Parkins.
 Mr. Thomas Waltham married J. II.
 My son, William Whiteway, borne.
 My cousin, Mary Mounsell, borne.
1623. Prince Charles went into Spaine.
 The Heralds kept their visitation here.

(12). Sarah Every. (Gould Pedigree).

(13). Rachel Chappell. She his 2nd wife, he her 3rd husband.

1623. The New England Planters' Parlement.
 Trinity Schools in Dorchester built.
 The fall of Blackfriars upon the Papists.
 My amnt, Mrs. Joane Gould, died.
 W. W. was Governour of the Court of Freemen.
1624. Mr. Chaffin was the first ordinary Shreeue.
 Co. Jonathan Monnsell was borne.
 My daughter, Margaret Whiteway, borne.
 Co. James Gould, of Dorchester, married M. S.
 Co. James Gould, of Exon, married J. M. (14)
 Sr. Robert Meller died.
 Sr. John Reeves died.
 My cousin, John Pit, Alderman, died.
 My cousin, Mathew Pit, died.
 The new prison in Dorchester built.
 W. W. was lieutenant to Captain Pelham.
 W. W. was chosen a Capitall Burgesse.
1625. King James died and King Charles began to raigne.
 King Charles married the Lady H. M. de Bourbon.
 The 2 voiage to Calis by my Lord Wimbledon.
 The great pestilence in London.
 Maurice Prince of Orange died.
 Sr. John Fitz James died.
 Sr. James Hussey, Chancellor of the Dioces, died.
 My daughter, Mary Whiteway the 1, died.
 My son, John the 1, borne and died.
 My sister, Mary Parkins, borne.
 Mr. George Bull married my sister, E. P.
1626. I was Burgesse of the Parlement for Dorchester.
 W. W. was chosen steward of the Hospitall.
 The Benevolence.
 The Lone.
 My cousin, Richard Bateman, married C. S.

1626. My vnkle, John Pit, of Bridport, died. (15)
 My aunt, Middelton, Saltonstall (?), died.
 My eousin, Alice Pit, of Waimouth, died.
 My father, W. W., bought an estate in Ashton.
1627. Sr. John Browne died. Voiage to the Isle of Re.
 My eousin, Mrs. Moriee, widow, died.
 My brother, John Parkins, died at Florennee.
 My sister, Martha Parkins, died.
 My daughter, Margaret Whiteway, died.
 Mr. Robert Cheeke, schoolmaster, died.
 My cousin, Thomas Newman, married E. B.
 My eousin, Ephraim Mounsell, borne.
 My son, John Whiteway the 2, borne.
 W. Whiteway began to be a housekeeper.
1628. Rochell was taken by the French King.
 George, Duke of Buckingham, was stabd.
 My Co. Mr. John Bell (?) was Parson of All Saints.
 Mr. Gabriel Reue came to be schoolemaister here.
 My Co. Joseph Pit married E. W. (16)
 My Co. William Paty married M. C.
 Mr. Latimer Sampson married my eousin J. M.
 Cousin Phineas Pit died.
 My cousin, Edward Gould, of Staverton, died.
 My eousin, Joane Kebbell, died.
 I W. W. was bailiffe of Dorehester the 1 time.
 W. W. was overseer of the Poor in Trinity Parish.
1629. Peace between England and France proclaimed.
 Dorehester was made a Maior Towne.
 Mr. William Benne, preacher, came to live here.
 Mr. Robert Angell married my eousin, S. B.
 My brother, William Parkins, married G. M.

(15). John Pitt was chronologist's grandmother's brother, and married Agnes, daughter of John Davidge, of Brent (Hutchins).

(16). Joseph and Phines were sons of John and Alice. (See 1589 and Hutchins').

1629. Mr. Thomas Bushrope married my sister, W. P.
 My brother, John Perkins the 2, borne.
 My sister, Margaret Walker, died.
 My cousin, Jane Bateman, died.
1630. Charles, Prince of Wales, borne.
 Peace between England and Spaine proclaimed.
 Composition for Knighthood.
 Sr. George Trenchard died.
 My vukle, Mr. John Gould, died.
 My brother, Mr. William Perkins, died.
 My cousin, Mrs. Joane Gould, widow, died.
 My daughter, Mary 2, borne and died.
 My brother, Sam Whiteway, went to Cambridge.
 Mr. Robert Walker married his second wife M. C.
 Mr. Bourd married my cousin Hester Bond.
 W. W. was chosen Towne Steward.
 My neece, Mary Perkins, was borne.
1631. The Battell of Leipzick.
 W. W. finished the Translation of D'aubigne.
 The lady Mary Princess borne.
 My father, W. W., was Maior of Dorchester.
 Mr. Steven Charlton married my cousin E. M.
 Mr. Haiden married my cousin, E. G. (17)
 My vukle, William Mounsell, died.
 My son, John Whiteway the 2, died.
 My cousin, Christian Bateman, died.
 My cousin, Margaret Bond, of Purbeck, died.
1632. The Battell of Lutzen.
 Gustavus Adolfus, King of Sweden, slaine.
 Sigismund 3, K of Poland, died.
 Frederick, K of Bohemia, died.
 My cousin, Mr. John Bond, of Purbeck, died.
 A general collection, for repair of Pauls Church.

(17). Elizabeth Gould, daughter of William and Alice (1607). She married Arthur Upton on the death of her first husband (Gould Pedigree).

1632. My eousin, Edward Gould, died at Veniee.
 My cousin, Richard Bateman, married his 2 wife.
 W. W. was Bailiff the 2 time.
1633. K Charles went into Seotland to be crowned.
 James, Duke of Yorke, borne.
 My daughter, Elenor Whiteway, borne.
 Sr. Thomas Freke died.
 My brother, Joseph Parkins, died.
 My sister, Willmot Bushrod, died.
 My eousin, David Giar, died.
 My eousin, Mrs. Francis Clark, of Exon, died.
 My Aunt Gould, of Staverton, died.
 I was chosen a ffeoffee of All Saints Church.
1634. Sr. Nathaniel Brent visited for the Archbishop.
 Sr. Edward Coke, sometime L Cheife Justice died.
 My grandfather, William Parkins and his wife, died.
 My eousin, John Moriee, proeeed Dr. of Divin.
 Mr. Hugh Thompson came to be lecturer.
 My Co., Aliee Gould, of Exon, died.
 My eousin, Deborah Mareh, died suddenly.
 My nevew, George Bull, borne.
 My eousin, George Gould, borne.
 My daughter, Elenor Whiteway, died.
1635. This year died the author of this book, W. Whiteway
 (my brother).
 My vnkle, John Prous, died. (Prous is spelt Prowse in
 the pedigree.)
 Mrs. Elizabeth Bull, dyed.
 My neeee, Mary Whiteway the 3d, born.
 The gratt moister of the whole sheere (Corā Count
 Suffolk).
 The whole sheere rated to the shipping.
 Old John Cunditt died.
 My eousin, Wm. Gould, of Exeter, dyed in the palsy.
 My eousin, Robert Bateman, dyed.

1635. Sr. Francis Ashley dyed.
My cousin, Onesiphorus Bond, dyed.
The lady Elizabeth Princesse borne.

I am indebted to Mr. Whiteway for most of the notes on the
"Chronology."—W. MILES BARNES.



NOTE TO THE COMMONPLACE BOOK OF A
DORSETSHIRE MAN.

Since the foregoing paper was printed Mr. Whiteway has sent me further particulars of the Whiteway family, which he has collected from wills in Somerset House; these are added in the note beneath.

In turning over the leaves of "Samuel Bull's accempts, 1647," in the Bodleian Library (Gough MS., No. 14) I happened to light on the following entry:—"Sep 6. 1647 Pd. Mr. Jno. Whiteway for soe much borrowed of him £50.0. 0." The signature of this Jno. Whiteway is attached to the letter addressed to the Rt. Honble. William Lenthall, speaker of the House of Commons, by the Dorset Committee, June 17th, 1646, praying relief for the county from the burden of the assessments made upon it, and by which it had become impoverished.—"Tanner MS., LIX., 345, Bodleian Library."

MR. WHITEWAY'S NOTE.

William Whiteway's Diary and Chronicle bring the history of his family down to his death in 1635 (Will C.C.C. 94 Sadler proved Sep 7. 1635). After that event there remained alive his father William, his son William, and his twin brothers John and Samuel (b. 1614), his mother Mary, his widow Elianor, and a few female members of the family.

As the Chronicle shows, Samuel entered at St. Catherine College, Cambridge in 1631 (the university books give the date of matriculation as April 4th, 1631); he proceeded to the B.A. degree in 1634, but did not take the M.A. degree and died before his father. The father, William, died in 1639 (Will C.C.C. 60 Coventry, proved May 6th, 1640). Like his son William he desired to be buried before the porch of St. Peter's Church, Dorehester, and like him left a legacy to Mr. John White, preacher, or his family. He left certain legacies to the poor of Denbury in Devonshire and of Dorehester, as capital sums to supersede annual payments. In his will he mentioned his daughter Mary Kerry (or Korry) and her husband Andrew, his daughters-in-law Elianor (widow of William) and Mary (wife of John), his own wife Mary, his son John and his grandson William. The last mentioned William, the son of the diarist, entered at Magdalen Hall, Oxford, on March 29th, 1639 (Alumni Oxoniensis Early Series, Vol. 4). I do not find that he took any degree. Hutchins gives 1656 (quoting the St. Peter's register) as the date of his death. I have

not been able on this trace to find his will. Mary, the widow of William, the elder, died in 1655, and Mary, the wife of John, in 1658. It remains to trace the history of John Whiteway. On July 22nd, 1643, he was appointed captain of one of the Dorchester Companies for the Parliament, Captain Seward commanding the other, the whole being under the Governor, Sir Walter Earle. John Whiteway was therefore one of those who capitulated to Prince Maurice when Earle bolted. He was Bailiff of Dorchester in 1642, 1651, and 1660; Mayor in 1643 and 1658; and he represented Dorchester in Parliament in 1654, 1656, and 1660. In 1660 his colleague was Denzil Holles. In 1664 he paid off his father's legacy to the town of Dorchester, a lump sum in lieu of an annual payment of 40s. As has been said, his wife Mary died in 1658. In 1667 he married a widow, Mrs. Martha Alsopp, of Hackney, Middlesex (Chester London Marriage Licenses, edited by Foster). After the Restoration he seems to have gradually disconnected himself from Dorchester; probably as one of the defeated party it was distasteful to him. He acquired some property at Rickmansworth, Hertfordshire, and died there in 1679. His will (C.C.C. 31 Bath proved Feb 6. 1679-80) shows that Sir F. Holles, a son of his old colleague in the representation of Dorchester, Denzil Holles, was the trustee under his wife's settlement. The land owned by him in Dorsetshire was to be sold and the proceeds, as well as the balance of his estate, was divided among the six living children of the first marriage, William, Mary, Stephen, Samuel, Peter, and Elizabeth. With the death of John Whiteway, the connection of the family with Dorchester, which had lasted exactly 95 years, ceased.





Plateau and Valley Grabels, Sarsen Stones
at Little Gredy and Elsewhere in
the County.

By J. C. MANSEL-PLEYDELL, Esq.

Read August 15th, 1894.



MR. JUKES BROWNE'S paper, which was read at our last meeting, explains the changes to which the chalk has been subject during the Pliocene and and Pleistocene ages (the latest of geological changes) since it emerged from the sea and left the high table-land, which now constitutes the high plateau gravel series, high and dry, covered over more or less with a sheet of gravel. The table-land then sloped to the south-east and was several feet above the level of the tops of the present hills. Atmospheric disintegration soon commenced its work of destruction and detrition, of which rain and snow were the most potent agents. As soon as erosion had commenced, the gathering drops began their downward course by rills and, furrows, which in course of time swelled into torrents, which excavated deep gorges and defiles. Other torrents in the same manner effected a similar work of erosion until the slopes became a series of valleys and ridges. These torrents would have their greatest force at the bottoms of the declivities, and here the valleys first took their

shape and size. The stream, ceasing to erode much at the bottom, commenced erosion laterally, and thus during the seasons of freshets and floods the valley was widened. In the case of elevation or upheaval the inclination of the valley would be increased and a new erosive power brought into action. The land upon which we are now standing, as well as the strata below, have been under the influence of denuding agents, as is shown by the materials of the Tertiary Beds (of which Blackdown is a remnant) which are derived from some earlier formation. The pebbles of the Blackheath and Woolwich Beds, and the flints of our plateau and valley gravels are derived from the Cretaceous Beds, which during the course of submersion were dissolved, leaving the insoluble materials, such as sarsen stones and breccia, resting upon the eroded surface. The superior beds of the Upper Chalk, from which the abundant supply of flint was derived, are not present in this district. The enormous amount of matter carried off the land by surface water every year, mechanically or by solution, can scarcely be appreciated. Mr. Whittaker says "It has been estimated that the loss over our island is much greater than the waste of land along our coast." It must be borne in mind that whilst the action of the sea is confined to one narrow border of land—rain, frost, rivers, &c.—are doing destructive work everywhere, and have a far larger base of operations even in an island with a comparatively large coast-line like ours. There is a fossiliferous gravel-bed on the summit of Portland, near the Verne, containing *debris* from the Tertiary and Cretaceous strata of the hills north of Weymouth. Professor Prestwich taking into consideration the enormous amount of erosion, which led to the formation of the valley more than six miles broad and from 400 feet deep, between Portland and Upwey, thinks it may belong to the plateau-gravel age.

Changes brought about by meteorological agencies on these high lands determined the arrangement of the hills and valleys. Detrition, in course of time, pared down the table-lands, and it is difficult to say to what extent glacial action was the cause. Between Christchurch, Wimborne, and Poole the

plateau-gravel varies in altitude from 100 feet near the coast, to 190 feet near Wimborne. At Bramshaw in the New Forest this table-land is 320 feet above the summit of the Plateau Gravel series at Milford, near Salisbury, while since its deposition the Valley of the Avon has been deepened 80 feet. The inclination of the plain if prolonged would reach as high on the source of the Avon and the Stour. Sections of the plateau-gravel covering it are seen along the coast as well as in the railway cuttings and gravel-pits, and on a detached flat-topped hill near Cranborne 320 feet above the sea level and on a level with the plain on the opposite side of the Avon. In the railway cutting one mile south of Wimborne 176 feet above sea level the gravel is from 24 to 30 feet thick. In another cutting in the same neighbourhood, where the junction of the gravel with the underlying formation is exposed, the gravel varies in thickness from two to twelve feet within 20 yards. The lower portion of the plateau-gravel is connected with the raised beach-line, which at Goodwood is 139 feet above Ordnance datum; farther west, at Parkstone, it seems to rise to 145 or 150 feet (perhaps only the effect of an exposed situation and violent storms). The South of England shows no proof of ever having been covered by an ice-shed, neither are there signs of any deposits resembling boulder clay or till. It must, however, have been a period of intense cold, accompanied with alternations of upheaval and submergence. The last one, at least the last of any importance, lifted this part of England to a higher level above the sea than it is now. A succeeding depression disconnected England from Ireland and the Continent. Previous to this disconnection Palaeolithic man had reached what is now England, and probably after the Ice Age had passed away. The lower Tertiary beds which covered the chalk, and of which Blackdown, Bradford Peverell, Whaddon, and Binecombe are outliers, have been removed by denudation, leaving on the subjacent surface the heavy insoluble materials, such as sarsen stones, flints, sandstones, &c. These sarsen stones formed portions of thick beds of quartzose sand which here and there became

concreted by the filtering of the sea-water. They are not usually in a continuous mass, but in detached blocks, while the remainder of the sands are left unconsolidated and disintegrated, and the stones scattered over the surface. In shape they are more or less quadrangular, longer than broad and much broader than thick. In ancient times they were used in cromlechs, standing stones, and ancient circles, as at Stonehenge, Winterborne, and Portesham. They are used also to protect the corners of village streets and highways, and occasionally as building stones. They may be seen, too, on our heaths doing duty for boundary stones. They form partly the material of Deverel Barrow, apparently for the protection of the urns it contained. Aubrey, 1656-84, says "They (the sarsen stones) lie scattered all over the downs about Marlborough, and encumber the ground for at least seven miles diameter, and in many places they are as it were so thick that travellers in twilight at a distance take them for flocks of sheep." I have heard that these huge stones may be broken in what part of them you please without any great trouble. The manner is this—they make a fire on that line of the stone where they would have it to crack, and after the stone is well heated, to draw over a line with cold water, and immediately give a smart knock with a smith's sledge, and it will break like the collets of a glass house. There are several explanations for the origin of the name "sarsen." The Rev. John Adams's (Geol. Mag., vol. x., p. 19) derives the name from the Saxon word "sar," grievous, troublesome, and "stan"—a stone. In pronunciation they would naturally become sarsen, sarsden, sasson, and a signification most appropriate, for when the downs were first brought under cultivation the breaking up and hauling away such impediments to the plough as they were must have been a very sore and troublesome work. Another explanation is "saracen," supported by Mr. Bristow (Cat. Rock Specimens 1862, p. 162) who says that the word saracen is applied in some parts of England to any foreigner, and that the saracens in popular belief were originally brought by foreigners. This is unlikely, as they must have had a local name long before the time of the Saracens. With

regard to their origin there are several theories. Sir Christopher Wren thought they were cast up by a volcano ; Stukeley that because they were of greater specific gravity than the chalk they were expelled from it by the rotation of the earth ; Professor Prestwich assigns their origin to the Woolwich and Reading beds, *i.e.*, the mottled clays and sands such as occur at Blackdown and the other outliers of the neighbourhood, and which fringe the Bagshots of the Hampshire and Poole basins, but some are probably derived from the Middle Bagshots. There are several of them at Milborne St. Andrew and the neighbourhood, where there are no Lower Tertiaries *in situ* ; but on the land adjoining the Roman camp there are numerous flint-pebbles of the Woolwich and Reading beds which at one time covered the chalk. At Warren Hill, about a mile due west of the camp, the chalk is capped with beds of sand and gravel containing small pieces of sarsen stones. It is quite a local deposit and may possibly have relation with the gravels of Yellowham Hill. These solidified blocks of sandstones are rarely met with *in situ*, but when they do occur in this condition they do so only in patches and associated with the sands, near Little Maine they overlay the chalk, and in one place are concreted into large blocks varying in size from two to six feet in diameter. At Coombe Keynes, where the chalk is overlain by the Lower Tertiary Sands, there are concretions of sandstone *in situ*. Agglestone, near Studland, is the remnant of an upper bed of the Middle Bagshots *in situ*, composed of a coarse quartz grit, derived probably from the wear and destruction of crystalline rocks which once covered this part of the country. The old rivers of that period probably flowed through a district abounding with granite and syenite rocks such as are now found in Cornwall and Brittany, and bore down to the sea the fine kaoline clays and other impalpable materials which now form the valuable clays of Corfe and Studland. There are several blocks of conglomerate or breccia of angular and rounded flints on Blackdown and the neighbourhood ; the flints are roughly stratified and so firmly cemented in a siliceous matrix that it requires a sharp

blow of a heavy hammer to break the mass. At Portesham there are upwards of 60 in the street of the village. Their abundance at Bridebottom has caused the valley to be called the Valley of Stones. These blocks were left lying on the chalk surface before the valley was scooped out; their accumulation at the bottom is the result of a process geologically termed *creeping*. Chalk on an incline is more subject to disintegration than when it is level, causing an insecure foothold to these surface blocks, which ultimately reached the bottom as we now see them. Their accumulation at Portesham and West Lulworth are similarly the result of creeping. The coombs of Little Bredy have been carved out by rain, frost, and landslips, when this district was at a higher level, and are the sites of water-courses before the valleys had been cut out to their present depth. The depths to which the main valleys have been excavated have been determined by the height to which Southern England was raised in glacial and post-glacial time. We know from the raised beaches along the south coast that the elevation was between 75 and 100 feet, and, allowing for subsequent subsidence, it was probably about 150 higher than it had been previously. The most instructive coombs in the county are about Rushmore, in the drainage system of the Tarrant. The heads of some of them are cut back by atmospheric agencies to the narrow ridge which divides the Dorset watershed from that of the Wardour valley.





1. *Plutella annulatella*, Curt., with larva and food plant
2. *Tinea vinculella* H. S., with larva and case on lichen

EXPLANATION OF PLATE.

All the figures are much magnified except 1b. and 2d.

1. *Plutella annulatella*, Curt. Imago of the form found at Portland, from a drawing of a Portland specimen; 1a. Larva; 1b. Flower stem (nat. size) of *Cochlearia*, shewing mode of feeding of larva, the front segments of which are buried in a seed-vessel.

[For a description and life history of this species see Proceedings D.N.H. and A.F.C., Vol. XIII., p. 172, and Entomologist's Monthly Magazine, Vol. XXVII., p. 317.]

2. *Tinea vinculella*, H.-S. Discovered as a species new to Britain by N. M. Richardson at Portland. Bred June 26th, 1894. Imago; 2a. Larva; 2b. Case of larva, upper side; 2c. End of case, under side, showing movable flap at entrance; 2d. Case (nat. size) on a lichen-covered stone.

NOTE.—The case is much less conspicuous than in the chromo-lithograph, and the lichen is *usually* not so green. The lichen is a microscopic one, and hardly distinguishable by the naked eye.

For full description see accompanying paper.



Tinea Vinculella, H.-S.

A SPECIES OF LEPIDOPTERA NEW TO THE BRITISH FAUNA,
WITH OTHER ENTOMOLOGICAL NOTES ON THE SEASON OF 1894.

By NELSON M. RICHARDSON, B.A., F.E.S.

Read December 10th, 1894.

[WITH PLATE.]



AFTER three years of unsuccessful attempts I have this summer had the pleasure of breeding from Portland a small, but very beautiful moth, *Tinea vinculella* Herrich-Schaeffer, which has not hitherto been recorded from Britain.

Three years ago I was endeavouring to find the larva of *Tinea subtilella* (Proc. D.N.H. and A.F.C., Vol. XII. p. 161), which I thought might feed upon lichen, and after turning over many stones covered with a very fine powdery microscopic lichen I found a small case exactly the colour and substance of the surface on which it rested, containing a lepidopterous larva, apparently of the genus *Tinea*. With much labour I collected a few cases, but was quite unsuccessful in breeding any moths either in 1892 or 1893. One or two of the pupæ, however, developed to near the point of emergence before dying, and I was enabled by dissection to get a sufficient idea of the appearance of the moth to enable me to decide that it was certainly not *T.*

subtilis, but a new British species. This year I bred between June 26th and July 1st eight specimens, which have been kindly identified for me by my valued correspondent, Major Ed. Hering, as "*Tinea vinculella* H.-S. [Herrich-Schaeffer, v, p. 75, fig. 175] a species hitherto found in July at Glogau, Vienna, Ratisbon, and in the Taunus Mountains, near Frankfurt a.M. and Wiesbaden." Major Hering adds that he knows of no other regions on the Continent where this rather rare species has occurred.

The following is a description of the imago:—Exp. al. 4 mill. Fore-wing blackish olive brown, nearly black when fresh, rather glossy, with a slight golden reflection. The costa is divided into four nearly equal parts by silvery white markings—(1) a narrow curved fascia generally of regular width, but sometimes a little narrower towards the costa, slightly oblique in position, the costal end being nearest the base; (2) costal and anal triangular spots, the latter extending through the cilia, occasionally (according to Heinemann)* uniting to form a fascia, also obliquely placed; (3) a crescent shaped costal spot concave posteriorly. Cilia like the wing, except that the outer row of scales is silvery white in the apical region.

Hind-wing and cilia dark-grey with slight golden reflections especially in the cilia. The extreme top of the head and the thorax are in colour like the fore-wings; the abdomen more like the hind-wings. The front part of the head is pale ochreous. Antennæ dark brown faintly ringed with white, flattened in the female, the respective diameters being about .05 mill. and .07 mill., whitish underneath. Maxillary and labial palpi well developed. Legs blackish, more or less ringed with whitish.

In colour and size this somewhat resembles *T. argentimaculella*, the most obvious points of difference being as follows:—The wings are acutely pointed in *vinculella*, but bluntly in *argentimaculella*; this is most striking in the hind-wings, being rather hidden in the fore-wings by the dense cilia. The markings in *vinculella* are broader and not so silvery and the minute apical silvery spots of

* I bred an example of this form from Portland on June 14th, 1895.

argentinae are absent ; the markings also differ in shape in the two species.

The following description of the very peculiar larva was taken from a nearly or quite full-grown specimen October 17th, 1894:—

Length 3·2mill. when at rest, 3·8m. when stretched out in crawling. Breadth of head 0·4m., prothorax 0·6m., mesothorax 0·65m., metathorax 0·7m. Segments 7-11 are considerably broader, No. 8 being about 1mill.; the last segment is the same breadth as the head. These measurements are taken when the larva is only 3·2m. long, and would not be correct for the middle segments when it was stretched out. The larva is rather cylindrical than flattened in shape ; the spiracular skinfold is much developed. The legs are very long, about 0·8m., but the claspers, though well furnished with hooklets, are very short and small. The anal flap is furnished with a fringe of small dark bristles, and the bristles on the body generally are large, especially the one which springs from a tubercle in the front of the spiracular region of the prothorax, which is about 1m. in length, and, with its tubercle, capable of considerable independent motion. The antennal processes are two or three jointed and rather long, and bear a few bristles at the tip. The head and first few segments are rather polished, the latter ones duller, as is usual in case-bearing larvæ.

The head, prothoracic plate, and leg plates are somewhat dark brown, the general ground colour pale yellowish, and the larva being rather transparent the food is visible through the skin, which gives an appearance of a greenish grey dorsal stripe. The anterior margins of the first few segments are whitish. Bristles tinged with the ground colour ; spiracles inconspicuous.

The pupa is 3·2mill. in length, rather soft, straw colour except the abdomen, which is more orange ; eyes nearly black ; skin rugose, segments not well defined. Antennæ slightly longer than body, wing cases almost as long as body—these parts are considerably raised and do not appear to be very closely attached ; the last five segments and perhaps more are certainly free.

The maxillæ are short and lie above and between the two sickle-shaped labial palpi. The maxillary palpi lie nearly at right angles to the maxillæ, just under the eyes, and end beneath the antennæ. The three pairs of legs end at 5-12ths and 2-3rds and the end of the pupa. There are a few small bristles about the mouth and also on the abdomen, but very inconspicuous. There is a considerable constriction between the head and prothorax. The end of the abdomen is blunt with no hooks or bristles.

Of the egg I have unfortunately no knowledge, but from the analogy of *T. pellionella*, in which the newly-hatched larva constructs a case, and from the fact that I have found very small cases of *T. vinculella*, I think that the larva makes a case as soon as it is hatched, to which it adds material as it grows. It lives upon the underside of stones and feeds on the fine microscopic lichen which covers them, but does not, as far as I am aware, eat the larger lichens at all. It is sometimes to be found on the sides of the stones, but I have never seen it on the top. Its favourite haunt is amongst the loose piles of stones, which are so abundant at Portland, and I think that anyone who obtains a series by turning these over deserves it, as one has to turn a good many to get one case. The moth is likely, therefore, to remain as scarce as *T. subtilella*. I have only taken one specimen in the imago state, an exceedingly worn male, which I caught on July 18th, 1888, and though I had always some slight doubts about it I had put it down as *T. argentimaculella* (which I have not found at all at Portland), from which there are not sufficient markings left to distinguish it. The shape of the wings, however, at once shows to which species it belongs.

The larva makes itself a case not unlike that of *Tinea pellionella*, but neater and better shaped and differently formed at the ends, which are similar to each other. The case is curved above and nearly flat underneath and lies quite close to the rock on which it is placed; it is less than half as deep as it is broad and nearly three times as long. The upper half projects considerably beyond the lower at each end, the extreme portion of the lower side forming a kind of flap, which is shut closely up against the top

part when the larva retreats into its case and opens to admits its head and front segments when it comes out. This flap is so elastic that, if when the case has been lately tenanted, it is bent open by a needle, it springs back and shuts on being released. As a rule the larva, when it retreats into its case, leaves its two long prothoracic bristles projecting outside, and it would naturally be concluded that these were delicate organs of touch, especially as they are moved about in different directions independently of the movements of the prothoracic segment, but I have not on trying them found them very sensitive.

At the base of this flap the case is narrowest, but swells out again a little near the end, which is beautifully rounded, the flap also being neatly rounded so as to fit the inside of the top part.

The measurements (in millimetres) of a case containing a larva, fullgrown or very nearly so (*a*), and of a second one containing a younger living larva (*b*), are as follows, and show a considerable difference in their shapes :—

Total length (*a*), 5·6m. ; (*b*), 4·6m.

Greatest breadth (in middle) (*a*), 1·97m ; (*b*), 1·1m.

Breadth at narrowest part (about 1m. from each end) (*a*), 1·2m. ; (*b*), 1m.

Breadth close to end (*a*), 1·4m. ; (*b*), 1·05m.

Thickness in middle (*a*), 0·9m. ; (*b*), 0·5m.

Thickness at narrowest part (about 1m. from end) (*a*), 0·5m.

Length of flap (*a*), 0·7m.

Length of projection beyond flap (*a*), 0·7m.

Length of underside between ends of flaps (*a*), 4·3m.

I have been particular in giving these measurements, as Major Hering sends me in a letter of July 13th last a translation from von Heinemann (*Schmetterlinge Deutschlands und der Schweiz*, Abth. II., Bd. II., p. 56) as follows :—

“I have cases from the Taunus and from Ratisbon. The former are very flat, $1\frac{1}{2}$ lines (German) broad, $3\frac{1}{2}$ lines in length, rounded on both ends and compressed before them, covered with fine grains of sand, flesh coloured (*sic!*), with darker grains ; those from

Ratisbon more cylindrical, $\frac{3}{4}$ line broad and 3 lines long, less flat, rounded only on the hind end and compressed there, floury white on the surface. In spring on lichens."

I have found that cases from Portland are of very delicate structure and after they become empty very soon get the ends more or less rubbed off, and also tend to assume a cylindrical form; the same result takes place if they are not very carefully handled, and I think it most probable that the difference between the two forms of cases mentioned by von Heinemann may be accounted for by the manipulation they received from the collector or by whether they were tenanted or not when collected. In the Portland specimens there is no difference between the ends, and they are used indifferently by the larva, as in the case of *T. pellionella*, one of our most common and troublesome clothes moths. It is, in fact, very nimble in turning round inside its case and will sometimes draw its head in at one end and almost directly put it out at the other. This generally takes place when it is unable to get along in the direction it wishes owing to its being stopped by a paintbrush or, no doubt, any other obstacle. Probably the little clasps, of which it makes no use in walking when taken out of its case, are employed in holding on inside to the delicate silken lining.

From the fact that amongst the cases of *T. vinculella* collected by me last spring were a few very small ones, the rest being full-grown, and that two of these in November contained nearly full-fed larvæ, which will probably, if they live, emerge as moths next July, I infer that the larva, sometimes at all events, lives for two years before pupating. Young larvæ are generally to be found at the same time as old ones, but there is hardly a sufficiently well-defined break to separate them into one year and two years old ones, so that I do not feel sure whether the rule is of universal application or whether some feed up in one season.

There is one point in the German description which also holds good with regard to the cases at Portland—namely, that they are composed of grains of sand or small particles of the hard Portland stone, which, though it seems hardly credible, the larva must in

some way get off the solid rock, as there is no loose material on its surface which it could use. The most probable explanation, as it seems to me, is that the surface of the rock is slightly disintegrated by the growth of the lichen, as we must otherwise assume that the larva bites off bits with its jaws. This view is strengthened by the fact that if one brushes a little of the lichen off the stone it is found to contain numerous stony particles.

This is only one more instance of the wonderful ways in which Nature carries out her plans and of the manner in which some of her greatest works (in this case the disintegration of the Island of Portland aided by a microscopic lichen) are partly carried on by the agency of things which seem to us at first sight perfectly incapable of the tasks allotted to them.

The composition of the case may be easily seen by placing a part of it between two pieces of glass and rubbing them together, or by burning a case and examining the ashes, which are seen to consist of fine stone particles. There are also particles of the lichen mixed with stone, and the whole is beautifully held together and lined with silk. The colour of the case is greenish grey, which is the usual colour of the lichen, though it is occasionally either green or white. The stony nature of the case doubtless affords protection from many enemies whose jaws would be powerless on such a substance.

The larva seems generally distributed at Portland, but scarce everywhere. I have not sufficient knowledge of the imago to say much about its habits. Those bred in captivity can run very fast like most of the genus, and it is a moth that would certainly be very hard to see when flying. I have often searched for it on the rocks and stones, but have never found it.

The next moth in point of importance captured at Portland during 1894 was found in the larva state by Mrs. Richardson in July. She discovered one day two small green caterpillars evidently belonging to the genus *Plusia*, which I, too hastily assumed from strong family likeness to be the larvæ of *Plusia gamma* (the silver Y); one of our most abundant species, which feeds on a great variety of plants and may generally be found

at Portland or elsewhere without much difficulty, if looked for, though being of a bright green colour it is not very conspicuous. Mrs. Richardson, however, with more foresight, kept these two larvæ, which duly spun cocoons and changed to pupæ, and whilst I was away from home at our Ranston meeting I had the pleasure of hearing from her that out of one of them on September 6th had emerged a beautiful specimen of *Plusia ni*, one of the rarest of our British moths, which has not before occurred in this country on more than three or four occasions. One was taken by Colonel Partridge at Portland in September, 1888, and another at Swanage in 1885, so that it would seem to be established in Dorset, though so far very rare, and from the price charged by Continental dealers (about 2s.) it would appear that it was either a rather scarce species everywhere or very local. A second specimen emerged on September 10th. The cocoon is very distinct from that of *P. gamma*, being smaller, more substantial, and more neatly made, whereas that of *P. gamma* is very loosely put together.

Another capture of Mrs. Richardson's is worthy of mention, as being apparently new to this county—namely, a single specimen of *Blabophanes (Tinea) imella*, a very local insect, which is, however, sometimes abundant, like others of its genus, at the spot where it occurs. At Portland, though we tried for some time, we could find no more, but I should not be at all surprised to see it turn up again in numbers in some favourable year. I do not think that the larva is known, but its allies feed on seeds, decayed wood, leather, wool, hair, and other substances.

The extensive immigrations of the clouded yellow butterfly (*Colias edusa*), which took place in 1892 and perhaps in 1893, have not been repeated, as this year a few stragglers only have been observed in most places and none at all in others. Personally I only saw one specimen in 1894, which was flying along the roadside at Chickerell last September, but it was occasionally seen by others in the neighbourhood of Weymouth. The early specimens of 1892 were undoubtedly immigrants, as the butterfly had been very rare in this country for some years and appeared suddenly in

swarms, but those which have since occurred here may be all or mostly descendants of those which then came across the Channel. All over the country the report is that the season of 1894 has been a bad one for Lepidoptera, most species being either scarce or not having put in any appearance at all. The cold wet weather is doubtless partly the cause of this scarcity, though the causes which affect the abundance or scarcity of insects are so obscure and numerous that it is difficult to assign any special cause as the real one. For instance, the weather equally affected two nearly allied species which occur at Portland, *Agrotis pyrophila* and *Agrotis lunigera*, yet from some mysterious cause, *pyrophila*, which is as a rule a scarce insect and in many seasons not seen at all, was in 1894 absolutely much commoner than *lunigera*, which is generally a common species at Portland and much more regular in its appearance than *pyrophila*. They appear at the same time of year, have much the same habits in the imago state, and both feed on grass and various low plants, though comparatively little is known of the larva of *pyrophila*, owing to its greater scarcity. The weather affects these two species equally, so that one would expect that both would be similarly influenced by it; the fact that they are not so shews that there are other causes of a less obvious nature at work which are very difficult to investigate. For the sake of adding to our difficulties we may consider a third closely allied species, *Agrotis lucernea*, with similar habits. This was not apparently much affected by the peculiar season, but was in about the same numbers as usual. The autumn moths have been specially scarce this year, including *Heliophobus hispidus*, *Epunda lichenea*, *Anchocelis lunosa*, and others which are often most abundant. Mrs. Richardson and I went after them in September and October even more than usual owing, perhaps, partly to the energy of some of our entomological friends who accompanied us, who hoped for success, but met with great disappointment. The autumn collecting is generally of rather an exciting nature. Each collector has a large duplex lamp in a sort of box with glass sides, which he carries about and occasionally sets down on the ground to attract the moths.

On a good night in a good season he has very little time to waste, for the moths come up at full speed one after the other, buzz up the side of the lantern or dance about in the grass in front of it until they are captured in pill boxes—nets are not of much use—and when the moth has once come to the light it rarely goes away, even if left to its own devices. On a moonlight night they will not come, the theory being that they all fly up towards the moon!

Before I close I have a few words to say about ants. Last spring I saw in a friend's collection of ants some small brown ones which reminded me of some I had often noticed at Portland, and I promised to get him some. In July I was able to fulfil my promise, having come across a nest of them at Portland, and I sent him a dozen or more, which turned out to be *Solenopsis fugax*, one of the rarest British species which had, I believe, only occurred before in the Isle of Wight, where it is rare. Sir John Lubbock says ("Ants, Bees, and Wasps," p. 78): "Another small species *Solenopsis fugax*, which makes its chambers and galleries in the walls of the nests of larger species, is the bitter enemy of its hosts. The latter cannot get at them because they are too large to enter the galleries. The little *Solenopsis*, therefore, are quite safe, and, as it appears, make incursions into the nurseries of the larger ant and carry off the larvæ as food."

In the Entomologist's Monthly Magazine, Vol. XXI., p. 37, Mr. W. W. Fowler, after recording the finding of a nest of this species in the Isle of Wight, says: "On pulling at a large stone to remove it from the side of the slope in which it was imbedded, the top, which fitted very closely, came off in my hand, and between it and the lower part the *Solenopsis* had formed its nest: owing to the position of the stone on a slope, the crack was in direct communication with the side of the hill in which it was imbedded, and here a large colony of *Formica fusca* had settled behind the stone. Not one of the latter apparently could have got into the crack, but the *Solenopsis* had of course easy access to the *F. fusca*."

Myrmecina Latreillei is another rare species of ant which has come under my notice as a devourer of strawberries and other fruit in my garden, though it is not in sufficient numbers to do any serious damage, and is much too interesting for me to wish to get rid of it. It is an amusing creature, for when you find one busily engaged upon a half-eaten strawberry, it stops eating directly you look at it, curls itself up, head to tail, draws in its legs, and remains motionless until it thinks the danger is past. I have not yet been successful in finding its nest. Sir John Lubbock says that they do not defend themselves even if their nest is invaded ; to prevent which they make the entrances small and often station at each a worker, who uses her head to stop the way.

Though it can hardly be called a British ant I may mention one which Mrs. Richardson found amongst Sir William Marriott's orchids near Blandford, as I do not know that it has been before recorded from Dorset. It was in considerable numbers in the orchid house, and had doubtless been imported with plants, as it is not a British native, and has only been found in similar situations in this country ; its name is *Tetramorium guineense*(=*kollari*).





On New and Rare British Spiders.

By the Rev. O. P. CAMBRIDGE, M.A., F.R.S., &c.

Read at Meeting of D.N.H. & A.F. Club, February 19th, 1895.

[WITH PLATE.]



THE past year—1894—is universally acknowledged to have been a bad one for Entomology, although some exceptions to this have occurred here and there, and some insects usually scarce or scarcely known as British have turned up in greater or lesser abundance. Spiders, however, appear not to have been affected by the excessive wet and generally low temperature of the season ; and the record I am able to furnish to you to-day is one not equalled for many past years. This record is due in very great measure to my nephew, the Rev. Fredk. Pickard-Cambridge, who chanced to have some leisure time on his hands and made a good use of it in the Swanage and Studland district. The general results between us both of the year's work are eight species new to science, thirteen others recorded for the first time as British, and some only now first recorded for Dorsetshire. Besides this, a considerable amount of useful work has been effected between us by hunting out types of existing species, and subjecting them to the microscopic examination of critical portions of structure. Under this test some spiders disappear from our lists as separate species, while in other cases we have found one or more species mixed up under one name. Results of this kind are inevitable when additions are made to the

DESCRIPTION OF PLATES.

PLATE A.

- FIG. 1. *Philodromus rufus*, Walck, male; 1a. Full figure magnified; 1b. Eyes from above and behind; 1c. Left palpus from outer side.
- „ 2. *Thanatus formicinus*, Clark, female; 2a. Full figure magnified; 2b. Eyes from above and behind; 2c. Genital aperture.
- „ 3a. *Lascola proxima*, sp. n., male; profile of cephalothorax; 3b. Eyes from above and behind.
- „ 3c. *Lascola prona*, Menge, male; eyes from above and behind; 3d. Profile of cephalothorax.
- „ 4a. *Onesinda minutissima*, Cambr., female; eyes from above and behind; 4b. Maxillæ, labium, and sternum; 4c. Genital aperture; 4d. Extreme portion of digital joint of palpus.
- „ 5a. *Eugnatha striata*, L. Koch; eyes from above and behind.
- „ 6a. *Tmcticus fortunatus*, sp. n., profile of cephalothorax; 6b. Eyes from above and behind; 6c. Right palpus from outer side; 6d. Left palpus from inner side.

PLATE B.

- FIG. 7a. *Wideria nequum*, sp. n., female; profile of cephalothorax; 7b. Eyes from above and behind; 7c. Leg of first pair; 7d. Genital aperture.
- „ 8a. *Plasioeranus speciosus*, sp. n., male; profile of cephalothorax; 8b. Eyes from above and behind; 8c. Right palpus in front; 8d. Cubital and radial joints of left palpus on outer side, in front, and rather beneath.
- „ 9a. *Gongylidiellum murcidum*, Sim., male; profile of cephalothorax; 9b. Eyes from above and behind; 9c. Left palpus from above; 9d. Left palpus, outer side; 9e. Genital aperture of female.
- „ 10a. *Philodromus lineatipes*, Cambr., female magnified; 10b. Right palpus of male from outer side; 10c. Genital aperture of female.
- „ 11a. *Oxyptila flexa*, sp. n., male, magnified; 11b. Left palpus from outer side; 11c. Genital aperture of female.
- „ 11d. *Oxyptila praticola*, C. Koch, male; Left palpus from outer side; 11e. Genital aperture of female.
- „ 12a. *Epeira angulata*, Clark, female, variety.

PLATE A.

Proc. Dorset N.H. & A.F. Club. Vol. XVI, 1895.

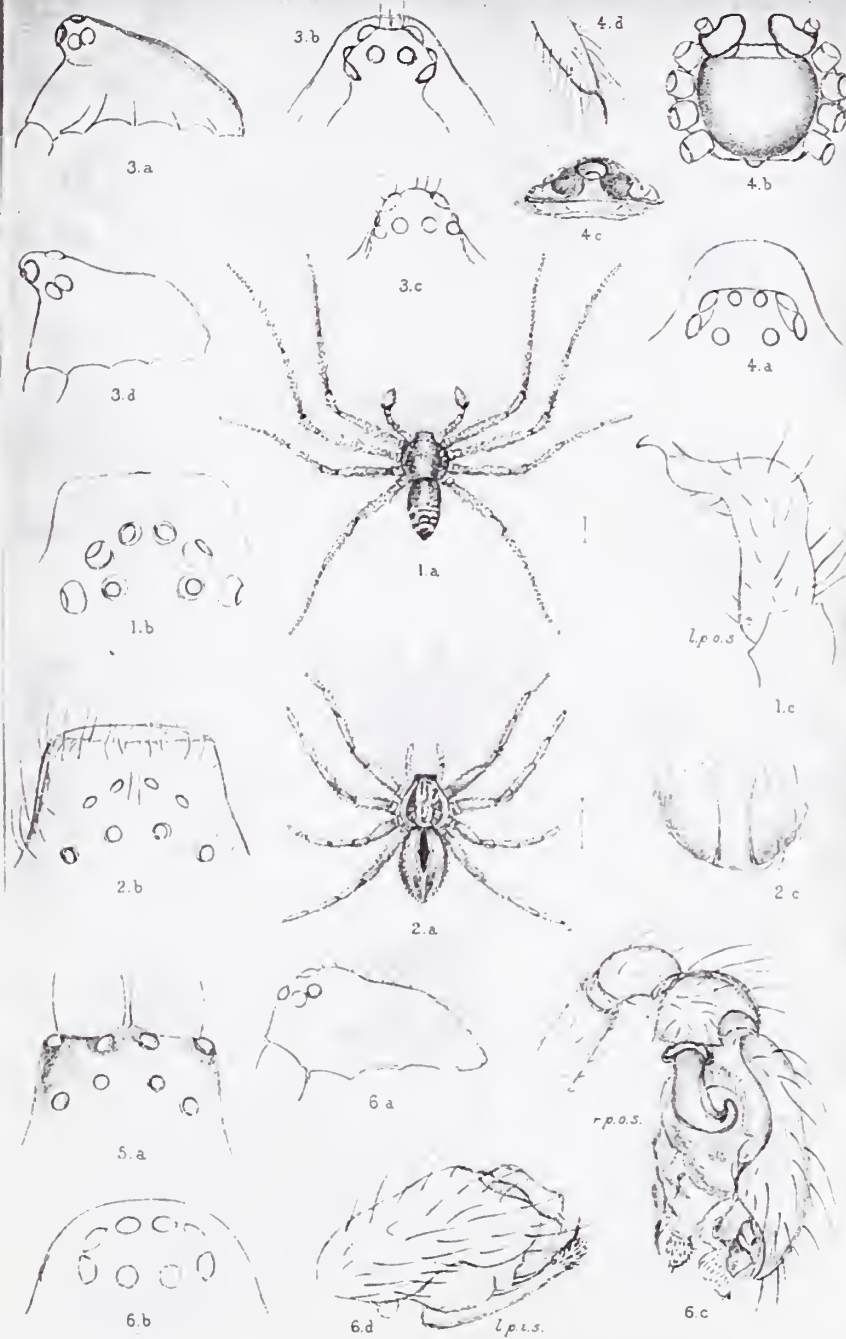
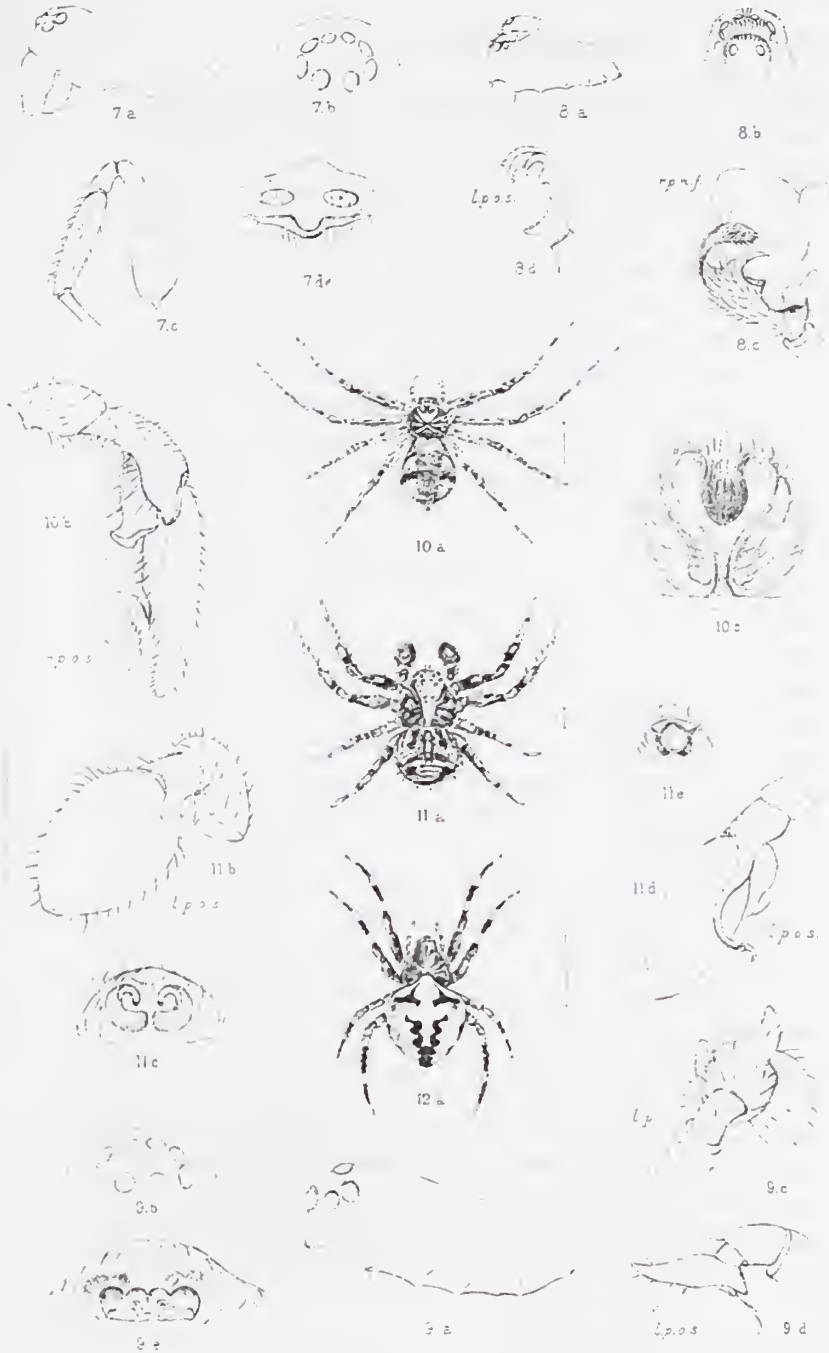


PLATE B.

Proc. Dorset N.H. & A.F. Club. Vol. XVI, 1895



often limited knowledge obtained at the time the species were first recorded, or where lengthened series have been subsequently made; the original species having been described from perhaps a single example. In addition to the spiders new to science or new to Britain above mentioned, others have occurred of great rarity or little known hitherto. Of the species *new to science* five have been found in Dorsetshire, as well as nine of those *new to Britain*. I shall only now add here a few general remarks on the year's record, leaving all scientific or other details to the list appended, as these would be only of interest to the specialist. And, first, I would remark upon the success met with by my nephew at Swanage and in that district. This success was not surprising to me, inasmuch as some years ago I had the chance of a day or two's collecting there; and from the results of those days I felt sure that with steady work it would prove (as it has done) a rich locality. One of the species discovered there, a lycosid, *Trochosa robusta*, Sim., is the largest of the group (all of the group being among our largest British spiders), and appears to be not rare under stones and pieces of rock on the undercliff between Durlston Head and Peveril Point; I also met with it afterwards near Chickerell. Another species, also a lycosid, not so large as the foregoing, but the largest of its group, *Lycosa Purbeckensis*, was found in abundance in the Studland district on the western shores of Poole Harbour in the month of May. Another very distinct species (a *Drassid*) *Agroeca littoralis*, occurred near Durlstone Head, as well as near Kimmeridge, but excepting one the examples were all immature. The finest spider, however, of those new to science (*Trochosa spinipalpis*) occurred rather freely in May under old bits of wood, boards, &c., in the water meadows near Warmwell; but a male and female were subsequently found among spiders taken in the previous year (also by my nephew) at the head of lake Derwent Water, and I have a female found at, or near, Bloxworth several years ago by my son Arthur. This sex of *T. spinipalpis* does not possess the very strong differential specific characters of the male and so there did not appear at the time sufficient to distinguish it clearly

from its ally *Trochosa terricola* (Thor.) During a visit paid by my nephew to the Cheddar Caves, in Somersetshire in May, examples of *Porhomma eyeria* (new to Britain) were found. It is well known that animals of various orders found in underground caves have, after ages of dwelling in more or less complete darkness, become blind. In some cases even the atrophied remnants of eyes have disappeared. The spider in question appears to be on its way to become blind. Some of the eyes have become more or less mere spots, apparently devoid of structure; and all trace of some of the eyes has vanished. No perfectly blind spider, however, was found at Cheddar; perhaps these caves are of less antiquity than those of Adelsberg in Austria, or of Ariège in France, or those of Kentucky in North America. In all of these caves perfectly blind creatures (spiders among them) are found; possibly the Cheddar caves being smaller some degree of light has penetrated from their outlets, and so the darkness has been incomplete and its effects on visual organs slower. Examples of the same species of spider as that found in the Cheddar caves have been recently found both in Scotland and Ireland, but not in any situation where light was excluded, and consequently neither in numbers nor structure have their eyes suffered.

Among spiders new to science I may mention one, *Oxyptila flexa*, taken by myself some years ago at Tonbridge, but overlooked until recently; another example of it was found long since in Wicken Fen, Cambridgeshire, by the late Mr. Wm. Farren, but likewise overlooked. It is, however, a very distinct and well-marked species. Among Mr. Farren's spiders was also an example of *Gonyptilidium murculum*, Sim., now recorded as British for the first time. A *Laseola*, new to science, was found at the same time at Tonbridge and overlooked in the same bottle as the *Oxyptila* noticed above. *Laseola tristis*, Haln., is also now recorded for the first time as British from Bloxworth Heath, as well as *Phisiocetrus speciosus*, new to science. Numerous examples of a new *Dictyna* (*D. arenicola*, Cambr.) were received from Mr. W. Evans, of Edinburgh. These were found by Mr. Evans running on the shore of Luffness

Links, East Lothian. On the 29th of August an immature example of a fine species, *Eugnatha striata*, L. Koch, new to the British list, was found by myself in the Wareham meadows on the south side of the town just over the south bridge. I look forward to turning it up there in the adult state during the coming season if I have any luck. An important addition to the British list was also made by Mr. Cecil Warburton, of Cambridge, who discovered among heather on the Beaulieu-road, near Brockenhurst, a specimen of an exceedingly pretty and well-marked spider, *Thanatus formicinus*, C. L. Koch. I have likewise a *Leptyphantes*, new to Britain (*Leptyphantes Mengii*, Kulcz); this was found mixed up among specimens of *Linyphia tenuis*, Bl., and was taken at or near Bloxworth. The true *Leptyphantes tenebriola*, Wid., has also been found by my nephew mixed up with *L. tenuis*, Bl., from Bloxworth, Carlisle, and Scotland. To the above we must also add four species of *Tetragnatha* lately recorded for the first time as British. It has long been known to us that our *Tetragnatha extensa*, Bl., comprised several species recorded by Continental araneologists, though not hitherto recognised as British; recently, all the specimens contained in my own and other British collections, under the name of *Tetragnatha extensa*, have been subjected to careful and microscopic examination. The conclusion come to by myself and my nephew is that we have not only the one (*T. extensa*, Linn.), hitherto supposed to be our only indigenous species, but four others making five known British species. The four additional ones will be noted upon in the subjoined list.

Among spiders hitherto very rare or local in Britain I may specially mention *Hyptiotes paradoxus*, C. L. Koch, of which Mr. Warburton found examples in the New Forest in August last. Only one British example had before been recorded, and this was many years ago in Cumberland. *Epeira angulata*, C. L. Koch, one of our largest Epeirids, was found also by Mr. Warburton, Dr. Sharp, and Mr. Macrae, in the New Forest during last summer; and adult males of *Philodromus fallax*, Sund., were taken by my nephew at Studland. These last are the first recorded

British examples of the male of this curious spider, remarkable for its perfect resemblance in colour to the sandy soil on which it lives. The females I have met with before, both at Bournemouth and on the Chesil Beach at Portland, but I had long and vainly searched for the males. On the 31st of May I found examples of both sexes of *Cornicularia lucida*, Cambr., under the grass edges of the gravel walks in the Greenhill Gardens at Weymouth. Previously, only one example—a male—was known. I may here mention that my nephew discovered in abundance our largest Salticid (or jumping spider), the handsome *Marpessa muscosa*, Clk., on walls near Swanage and St. Aldhelm's Head in September. Hitherto, although occurring in several other British localities, one specimen only (sent me years ago from near Poole by the late Mr. E. Kemp Welch) had been recorded as found in Dorset. Lately, in October, I discovered among dead leaves in Bere Wood a female of a very distinct new species of the genus *Wideria*; and, lastly, I have to record an example of *Onesinda* (*Walckenaera*) *minutissima*, Cambr., found at Portland several years ago, but overlooked until now. It is new to Dorset (the only examples before known having been found many years ago at Balmoral in Scotland by my cousin, the late Col. Pickard, R.A.), and is one of the smallest known spiders.

In the following list the spiders belonging to the genera *Neriene* and *Walckenaera* of Blackwall are recorded for the most part under the generic names severally given by Menge and Simon. These genera even in Mr. Blackwall's days, and more so afterwards, grew to be large assemblages of heterogeneous species and imperatively demanded sub-division. I had myself been collecting materials for this for several years, but was hindered not only by other matters, but by the difficulty of obtaining in numerous instances more than one sex of the spiders. In 1866 Herr Menge in his "Preussische Spinnen" characterised many new genera based on various spiders of the two genera mentioned, but he does not appear to have been personally acquainted with Mr. Blackwall's works, and in many cases his generic characters are based on the structural details of the male palpi, insufficient, as yet understood, for the characterisation by

themselves of genera. Some, however, of Menge's genera have stood the test of further research by M. Simon and others, and are acknowledged by araneologists in general. In 1884 M. Simon in his "Araneides de France Tom. 5." made a bold and successful attempt to break up Mr. Blackwall's two genera, and the groups into which these, for the most part minute, spiders are sub-divided by M. Simon are those mainly recognised at present, though (especially in respect to some of Blackwall's species of *Walckenaera*) there seems to be still a good deal wanting to establish satisfactorily some of the genera put forward in the "Araneides de France."

In former papers I have followed the plan sketched out in "Spiders of Dorset," 1879, and kept to Mr. Blackwall's limitations of *Nerienne* and *Walckenaera*, only indicating frequently the new generic groups to which various species under consideration might belong; but having now determined to relinquish entirely those names as latterly understood by Mr. Blackwall it is necessary to consider in what sense, if at all, they should be retained. I here speak particularly of one of these genera, *Nerienne* (about *Walckenaera* there is not so much difficulty). With respect, however, to *Nerienne* the case is not so simple. The genus *Nerienne* was first established by Mr. Blackwall in 1833 (Edinbro, Phil. Mag. iii., p. 157) on three, then new, spiders—*N. marginata*, *N. rubens*, and *N. cornuta*. The first of these was subsequently ascertained to be without doubt the *Linyphia clathrata* of Latreille, and therefore already generically separate from the other two. *Nerienne* then would obviously belong to the other two species, and the name should, it is submitted, be retained for them, or at least for one of them, even though every species subsequently added to the group should be found heterogeneous. If Menge were acquainted with Mr. Blackwall's works he evidently did not think *Nerienne* should be thus retained, as he has based a new genus, *Gonatium*, on one of those two spiders and *Dicypnus* on the other; but it is not clear (as observed before) that Menge was so acquainted; certainly the name *Nerienne* does not occur anywhere in his book. Dr. Thorell ("Europ., Spid., p. 83, 1870") considered that the genus *Nerienne* ought to be

wholly suppressed, because the numerous species belonging to it at that date might, he thought, be well disposed of in the genera *Linyphia*, *Walekenaera*, and *Erigone*; but this, ignoring as it does the prior establishment of *Neriene* and the then still heterogeneous nature of *Erigone*, seems to be not only unjustifiable, but unnecessary. M. Simon, in "*Araneides de France*," drops *Neriene* entirely without note or comment; but the two species, for one or both of which I would retain it, are there included in the genus *Gonatium*, Menge, Sim. However, recently (1894), M. Simon, in his latest work (*Histoire des Araignées*, 2nd Ed., p. 666), revives *Neriene* for, among others, some species which Mr. Blackwall added to that genus long after its establishment, these species forming in "*Araneides de France*," part of M. Simon's genus *Gongylidium*, Menge. On what grounds M. Simon has thus revived *Neriene* he does not state; perhaps it is that in that same year, 1894, two Polish araneologists (L. Kulczyński and C. Chyzer, "*Araneæ Hungariæ*," 1894, p. 92) adopt *Neriene* with similar limitations, and similarly without remark or explanation. It appears to me on the above facts that *Neriene* should not be suppressed, but that it should be still retained for one, or both, of *N. rubens* and *N. cornuta*; and that *Gonatium*, Menge, should lapse as well as *Dicypus*, Menge, the latter name being occupied by Fieber in 1858 for a genus of Hemiptera.

LIST OF SPIDERS NOTED IN 1894.

F A M . D Y S D E R I D E .

DYSDERA CROCOTA, C. L. Koch.

Dysdera crocata, C. L. Koch. Cambr. Spid. Dors., p. 6.

An adult female, sent to me by Mr. George Hibbs, by whom it was found at Bere Regis in May, 1894. Adults of both sexes were found subsequently at Swanage by the Rev. F. P. Cambridge.

F A M. D R A S S I D E.

DRASSUS MINUSCULUS.

Drassus minusculus, L. Koch. Sim. Aran. de Fr. tom 4,
p. 134.

„ *delinquens*, Cambr. Spid. Dors., p. 21.

Adults of both sexes were found rather abundantly under old seaweed at Littlesea in May, 1894, by the Rev. F. P. Cambridge. These specimens were larger and more strongly and distinctly marked than the types of *Drassus delinquens* taken by myself on Bloxworth Heath many years ago. On careful examination the identity of this species with *D. minusculus*, L. Koch, appears to be certain.

DRASSUS PUBESCENS.

Drassus pubescens, Thor. Cambr., Spid. Dors., p. 20, and Proc. Dors. N.H. and A.F. Club, Vol. xii., p. 84.

Adult and immature examples of both sexes occurred under dead leaves in Bere Wood.

DRASSUS INFUSCATUS.

Drassus silvestris, Bl. Cambr., Spid. Dors., p. 460.

„ *infuscatus*, Westr.-Cambr. Proc. Dors. N.H. and A.F. Club, Vol. x., p. 129.

This spider is not rare among dead leaves and rubbish in woods at Bloxworth, and is adult in May and June; but its distribution is not yet known much about. I find, however, in addition to those already recorded, an adult female among some spiders taken by the late Mr. Richard Beck many years ago at or near Hastings.

DRASSUS LAPIDICOLENS.

Drassus lapidicolens, Walck. Cambr., Spid. Dors., p. 19 (in part).

Among numerous examples in my collection hitherto included under this name, I have found some which, after careful examination by my nephew and myself, we have concluded to be *Drassus cupreus*, Bl. There has long been an uncertainty about this latter

species until the recent discovery of types of it among the remnants I possess of the late Mr. Blackwall's collection. Differences in the colouring, which in *D. cupreus* has a bright coppery tinge, and the sternum broadly margined with dark-brown, and especially in the dentition of the falcies of the males and the form of the genital aperture of the females, serve to distinguish the two species without difficulty; both species seem to be fairly abundant in Dorsetshire and to be found in similar situations—chiefly under stones and pieces of rock partly imbedded in the earth. A curious feature in the life history of *Drassus lapidicolens*, and probably of *D. cupreus* also, is that the mature male lives for a long time in a silken web close alongside that of the immature female and resides there patiently awaiting her maturity.

DRASSUS CUPREUS.

Drassus cupreus, Bl. Cambr. Spid. Dois., p. 461.

As noted above, this spider has been hitherto confused by myself with *D. lapidicolens*. Its coppery hue will, however, generally serve to distinguish it, especially now that the two species have been certainly separated by the more satisfactory tests of structural differences. *Drassus cupreus* seems to have been rather abundant with Mr. Blackwall, while *Drassus lapidicolens* was much less well known to him. This is the first record of the former as a Dorset spider.

DRASSUS MACER.

Drassus macer, Thor. Kongl. Svenska Vetenskaps, Akad. Handl., Bd. 13, No. 8, p. 372 (1874).

This spider (of which I have types from Lower Austria sent to me by Dr. Thorell) is very closely allied to *Drassus lapidicolens*, Wlk., and closely resembles it in general form and appearance, but it is smaller, and the dentition of the falcies of the male is different. British examples were found among my specimens of *D. lapidicolens* and *D. cupreus*, and it has also been taken in the summer of 1894 by the Rev. F. P. Cambridge at Swanage. This is its first record as a British spider.

MICARIA SCINTILLANS.

Micaria scintillans, Cambr. Spid. Dors., p. 12.

Both sexes, adult, were found by the Rev. F. P. Cambridge near Swanage in the early summer of 1894. This is a new locality for this rare and local species.

AGROECA INOPINA.

Agroeca inopina, Cambr. Proc. Dors. N.H. and A.F. Club, Vol. vii., p. 71, and Vol. xii., p. 85.

Both sexes, adult, occurred in abundance among tufts of grass and weeds on the slopes of the hills towards the sea between Lulworth Cove and Durdle Door on the 11th of September, 1894. It has also been found by the Rev. F. P. Cambridge near Swanage during the past season—1894, and I met with two adult females among heather on Bloxworth Heath in April of the same year.

AGROECA LITTORALIS.

Agroeca littoralis, F. P. Cambr. Ann. and Mag., N.H., Ser. 6, Vol. xv., 1895, p. 26.

A fine and very distinct species found by the Rev. F. P. Cambridge near Durlston Head, Swanage, and near Kimmeridge in 1894; only one example—a female—was adult. It is allied to *Agroeca lineata*, Sim. (Aran. de. France, iv., p. 308), as well as to *A. striata*, Kulz Aran. Nov. in Mont. Tatricis, 1882, but is probably distinct.

ZORA NEMORALIS.

Hecarge nemoralis, Bl. Cambr. Spid. Dorset, p. 43.

An adult male was taken by the late Colonel Pickard, R.A., V.C., &c., at Balmoral, Scotland; but has been overlooked until lately, when I was examining some other spiders found by him at the same time.

FAM. DICTYNIDÆ.

DICTYNA ARENICOLA.

Dictyna arenicola, Cambr. Proc. Roy. Phys. Soc., Edinburgh, 1894, Vol. xii., p. 589, pl. xii.

Numerous examples of this species were sent to me from the shores of Luffness Links, East Lothian, Scotland, by Mr. William Evans, of Elinburgh. It is allied to *D. arundinacea*, Sim., but has a whiter ground colour; the markings are also sharper and of a deeper hue; the structure of the male palpi varies from that of *D. arundinacea*, and its habitat and habits are quite different. It is closely allied to *D. cognata*, Cambr., from Holland (Ann. and Mag., Oct., 1885), but in the absence of types of this latter species for comparison, I think it is distinct.

DICTYNA VARIABILIS.

Dictyna variabilis, C. L. Koch. Cambridge, Spid. Dors., 466.

An example of the female was found in August, 1894, by Mr. Cecil Warburton in the New Forest. I had myself taken it near Lyndhurst many years ago; it is a rare but rather widely-dispersed species.

FAM. THERIDIIDÆ.

EURYOPIS FLAVOMACULATA.

Euryopsis flavomaculata, C. L. Koch. Cambr., Spid. Dors., p. 100.

An adult male and female occurred under dead leaves in Berewood on the 21st of May, 1894, also an adult male by sweeping among heather on Bloxworth Heath on June 27th, and another female in Berewood in October of the same year.

LASEOLA TRISTIS.

Theridion triste, Hahn. Die Arachn. I., p. 89, pl. xxi., fig. 67.

An adult female of this species was taken among heather on Bloxworth Heath in May, 1888. This is its first record as a British spider.

LASEOLA PROXIMA, sp. n.

Adult male, length slightly over 1 line. In general form and structure this spider is of the normal type. The caput is rather elevated in a gradually sloping and convexly curved line, and the ocular area is prominent; the clypeus is high and sharply impressed

below the eyes, but sloping forwards thence to the lower margin. The colour of the *cephalothorax*, which is longer than broad, is pale yellow-brown, with rather diffused indistinct darker converging lines on the thorax.

The *eyes* are of nearly equal size, all pearly white excepting the fore-central pair. They are in two transverse curved rows, the convexity of the curves directed forwards; the anterior row (from the prominence there of the ocular area) is much the most strongly curved. The eyes of the hind-central pair are separated by a diameter's interval and are distinctly nearer together than each is to the hind-lateral eye on its side. Those of the fore-central pair are separated by $1\frac{1}{2}$ diameters interval.

The *legs* are tolerably long and moderately strong, 1, 4, 2, 3 furnished with hairs only; colour, dull orange-yellow, without any brown markings.

Palpi short, similar in colour to the legs. Palpal bulb of moderate size, palpal organs compact, with no very noticeable or prominent processes.

The *palces*, *maxillæ*, *labium*, and *sternum* are similar in colour to the cephalothorax.

The *abdomen* is short-oval in form, of a dark blackish-brown hue, clothed with short pale hairs; spinners short, compact; those of the inferior pair strong, but scarcely longer than the superior pair.

This species is nearly allied to *Laseola prona*, Menge, but is larger, and differs noticeably in the longer cephalothorax (which in *L. prona* is very nearly circular), the less elevated ocular area, whose extremity is broader and less pointed, and lower clypeus. The curve also of the posterior row of eyes is different; a transverse line drawn through the centres of the hind-central pair in the present species would pass almost clear in front of the anterior margin of the hind-lateral eyes, while in *L. prona* the posterior row is very nearly straight and its eyes equally separated from each other. The legs are also immaculate in the present spider; while in *L. prona* (at least in fresh specimens) the femora and tibiæ are more or less clouded with brown. The palpi in *L. prona* are much

shorter, the palpal bulb smaller, and the palpal organs, though very similar, are yet different in structure. The posterior extremity of the abdomen is also in *L. prona* much more bluff and rounded.

An adult male was found by myself some years ago near Tonbridge, but has been hitherto accidentally passed over unnoticed.

ONESINDA gen. nov.

Cephalothorac very short, as broad as long; broadest behind. The profile forms an ascending curve to the ocular area, which is a little prominent. The clypeus considerably exceeds in height half that of the facial space. It is rather convex and prominent at its lower margin. The lateral marginal impressions at the caput are very slight.

Eyes in two transverse very nearly equally but slightly curved rows, the convexity of the curve directed backwards, the anterior row shortest; the lateral pairs largest. The interval between the hind-centrals is double that between each and the lateral next to it of the same row. The fore-centrals are smallest, separated from each other and from the fore-laterals by an eye's diameter.

Legs short, tolerably stout, 4, 1, 2, 3 furnished with hairs only. All the metatarsi are distinctly shorter than the tarsi.

Falces as long as the height of the facial space, strong, subconical, vertical.

Pulpi furnished with a terminal claw.

Maxille short, straight, strongly inclined to the *Labium*, which is half as high as it is wide and broader at the base than at the apex, which is truncated.

Sternum large, its surface convex, broader than long, almost circular, truncated at the anterior extremity; the posterior extremity very broad and rounded.

Abdomen nearly globular.

This genus is nearly allied to *Pholcomma*, Thor., but may be distinguished by a different position of the eyes; the tarsi all longer than the metatarsi; a different form of the labium; and the sternum broader and rounder, especially at its posterior extremity.

ONESINDA MINUTISSIMA.

Walckenaera minutissima, Cambr. Ann. and Mag., N.H., Ser. 5, Vol. iv., p. 203, pl. 12, fig. 7, and Spid. Dors., p. 500.

The two examples from which this spider was first described—both females—were sent to me from Balmoral Castle, Scotland, by my cousin, the late Colonel Piekard, R.A., in 1879. I have recently found an adult female among some other spiders taken at Portland some few years ago, but hitherto overlooked. It is a remarkable little spider, being one of the smallest known species, the female measuring no more than 1-24th of an inch in length. The male, when discovered, will probably be found to be still smaller. The possession of a terminal tarsal claw, overlooked when first discovered, separates it at once from the *Walckenaerini*, though in general form and appearance it bears a very close resemblance to spiders of the genus *Ceratinella*, Emerton, whose type is *Walckenaera depressa*, Bl.

FAM. LINYPHIIDÆ.

GONGYLIDIELLUM MURCIDUM.

Gongylidiellum murcidum, Sim. Aran. de France tom. 5, p. 608.

An adult example of the male of this species (which is nearly allied to *G. (Neriene) vivum*, Cambr.) has been mixed up among specimens of the latter in my cabinet. It was found and sent to me from Wicken Fen, Cambridgeshire, by the late Mr. William Farren. A difference in the form and structure of the palpi distinguish it without difficulty from *G. vivum*. This is its first record in Great Britain.

GONGYLIDIUM DISTINCTUM.

Gongylidium distinctum, Sim. Aran. de France tom. 5, p. 497.

Coryphæus glabriceps, F. O. P. Cambr. Ann. and Mag. N.H., Ser. 6, Vol. xiii., p. 87, 1894.

According to Mous. Sim., who has examined a specimen of *Coryphæus glabriceps*, it is identical with his *Gongylidium distinctum*.

MASO SUNDEVALLII.

Neriene Sundevallii, Westr. Cambr., Spid. Dors., p. 125.

Maso Westringii, Sim. Aran. de France tom. 5, p. 864, (non *M. Sundevallii*, Sim.)

The spider named l.c. supra by M. Simon *Maso Sundevallii* is quite a distinct species from *M. Sundevillii*, Westr., and has been recently renamed by M. Simon *Maso Gallica*.

MICRONETA DECORA.

Neriene decora, Cambr. Spid. Dors., p. 492, and Proc. Dors. N.H. and A.F. Club, Vol. vi., p. 7, pl. 1, fig. 4.

Adult males of this spider were found running on the Rectory walls at Bloxworth during May, 1894.

MICRONETA CONIGERA.

Neriene conigera, Cambr. Spid. Dors., p. 132.

„ *festinans*, Cambr. Proc. Dors. N.H. and A.F. Club, Vol. vi., p. 7, and 13, pl. 1, fig. 2.

Examination under a microscope has shewn that the two spiders here noted are identical, the latter being only larger and more richly coloured.

BARYPHYMA PRATENSIS.

Walckenaera pratensis, Bl. Cambr., Spid. Dors., p. 502, and Proc. Dors. N.H. and A.F. Club, Vol. xii., p. 94.

„ *M-adii*, Cambr. Spid. Dors., p. 502.

Baryphyma Schlickii, Sim. Aran. de France tom. 5, p. 695.

Both sexes adult were found in some abundance by the Rev. F. P. Cambridge running on railings in the Wareham meadows in April, 1894. There is little doubt but that the synonyms above given are correct.

PORRHOMMA EGERIA.

Porrhomma egeria, Sim. Aran. de France tom. 5, p. 357

„ „ F. P. Cambr. Ann. and Mag. N.H., 1895, Ser. 6, Vol. xvi., p. 36.

Males and females in the adult state were found by the Rev. F. P. Cambridge in the Cheddar Caves in May, 1894; also by Mr. W. Evans in Scotland (near Rosslyn) in 1893, and an adult male in Ireland by Mr. G. H. Carpenter in 1894.

TMETICUS *WARBURTONII*.

Tmeticus Warburtonii, Cambr. Proc. Dors. N.H. and A.F. Club, Vol. x., p. 9, fig. 5 (1889).

An adult female was found in Wicken Fen, Cambridgeshire, in 1894, by Mr. Cecil Warburton. Hitherto this species had only been found at Southport, Lancashire, and in Cumberland.

CORNICULARIA *LUCIDA*.

Nerienne lucida, Cambr. Spid. Dors., p. 127.

A male and female adult occurred under the grass edges of the gravel walks in the Greenhill Gardens, Weymouth, on May 31st, 1894. The only example before recorded was in June, 1870, at Bloxworth. The female is therefore new to science.

PANAMOMOPS *DICEROS*.

Walckenaera diceros, Cambr. Spid., Dors., p. 145.

Of this minute but rare spider an adult female was found among moss in Bere Wood on the 28th of March, 1894.

LOPHOCARENUM *PARALLELUM*.

Walckenaera parallela, Bl. Cambr. Spid. Dors., p. 156.

Examples of this species occurred in May, 1894, in the Greenhill Gardens, Weymouth. It is rather an abundant spider in some seasons, but sometimes for several years I have not seen one.

WALCKENAERA *NODOSA*.

Walckenaera nodosa, Cambr. Trans. Linn. Soc. xxviii., p. 550,
pl. 46, fig. 21, and Spid. Dors.,
p. 509.

„ *jucundissima*, Cambr. Spid. Dors., p. 449, pl. 6, fig. 8.

A curious injury received by the type specimen of *W. nodosa*, and only discovered lately by examination under microscopic power, gave a distinctly different but symmetrical form to the eminence on the caput. It is pretty certain now that the two species are identical.

WIDERIA NEQUAM, sp. nov.

Adult female, length $1\frac{1}{2}$ lines.

Cephalothorax oval, roundly truncate before, broadest behind, lateral marginal impressions at the caput slight and gradual, caput roundly elevated, but the elevation is chiefly owing to the large and rather deep depression behind the occiput, which is very visible in profile. Colour dark yellow-brown, suffused with a deeper hue and marked with indistinct blackish-brown converging lateral lines. The height of the clypeus is equal, or very nearly, to half that of the facial space.

The *eyes* are rather large and form a large broad-oval transverse area in two curved rows, the convexity of that of the anterior row directed forwards that of the posterior pair backwards. The fore-laterals are largest, the fore-centrals smallest, almost contiguous to each other and to the fore-laterals. The hind-centrals are separated by rather less than an eye's diameter from each other, and less than half that from the hind-laterals. The four central eyes form a quadrangle, whose length is scarcely greater than its breadth and its fore-side much the shortest.

Legs moderately long, rather strong, not very unequal in length, 4, 1, 2, 3, tibiae of the first and second pairs (especially of the first) very much stronger than the metatarsi, cylindrical and not tapering, furnished with hairs only. Colour bright orange-yellow.

Palps strong, rather convexly prominent in front, perpendicular, conical.

Maxillæ and *labium* normal, dark yellow-brown.

Sternum longer than broad, shield-form, slightly hollow-truncate in front, the posterior extremity broad obtusely pointed. Colour similar to that of the maxillæ and labium.

Abdomen elongate-oval, clothed with short hairs, and of a dull luteous colour suffused with sooty brown. Genital aperture of very characteristic form.

A single example of this spider (of which I have not yet met with the male) was found among moss and herbage in Bere Wood in the middle of October, 1894.

PLESIOCRERUS SPECIOSUS, sp. nov.

Adult male, length $\frac{3}{4}$ of a line.

Cephalothorax much longer than broad, oval, obtusely rounded before; lateral marginal impressions at the caput very slight and gradual. The fore part of the caput is elevated and prominent, its upper part divided into two lobes (the upper one much the smallest) by a transverse indentation; along the base of the upper lobe and on each side of the lower one is a very large deep excavation or indentation which runs backwards, narrowing in its course to a fine point close to the occiput. The fore extremity of the upper lobe is thickly clothed with short divergent hairs, which are met over the transverse cleft by some longer ones from the extremity of the lower lobe. The height of the clypeus is distinctly less than half that of the facial space. Colour deep yellow brown, suffused, excepting on the upper and fore parts of the caput, with blackish-brown and some converging indistinct suffused blackish lines on the thorax.

Eyes in the usual position, a pair (smallest) not quite contiguous to each other at the middle of the fore extremity of the lower lobe, a pair (contiguous) on each side of the same lobe, and a pair on the summit of the upper lobe in a transverse line, occupying almost the whole width of the lobe, and separated from each other by at least, if not rather more than, two diameters' interval. Looked at from in front the fore-central and two lateral pairs of eyes form a slightly curved line, the convexity of the curve directed forward; and each fore-lateral eye is separated by a diameter's interval from the fore-central on its side, and the interval between each fore-lateral and the hind-central eye on its side is distinctly but not greatly less than

that between the fore-laterals. These four eyes form a large quadrilateral figure whose lower side is largest and its upper side shortest.

Legs moderately long, rather slender; 4, 1, 2, 3, of a bright but not dark orange yellow colour, and furnished almost entirely with hairs.

Palpi short, similar to the legs in colour, cubital joint short, rather bent, and somewhat clavate; radial joint shorter, greatly and broadly produced on the inner side over the digital joint; the extremity of this apophysis being somewhat tapering, and curving strongly round to the outer side, its point being studded with short black spine-like bristles. A little way behind it is a prominent narrow curved, pale, somewhat spine-like, pointed process issuing from its inner side or underneath, and following a similar curve to that of the extremity of the apophysis, and behind it is another strongish obtuse pointed lobe or process. The digital joint is of rather irregular shape and furnished with longish coarse hairs. The palpal organs are highly developed, prominent and complex, with a small black circularly curved spine at their extremity.

Sternum very obtuse and somewhat truncate behind, almost if not quite as long as it is broad, and its surface is strongly convex and covered with small circular granulations.

Abdomen oval, thinly clothed with hairs, and of a dark yellow-brown colour. This, however, is not reliable, as the type specimen had been long in spirit of wine, and probably was much faded.

An example of this very distinct species was found in 1880 at Bloxworth, but had been accidentally mixed up with specimens of another species. It is allied to *P. (Walckenaera) latifrons*, Cambr.

WALCKENAERA MELANOCEPHALA.

Walckenaera melanocephala, Cambr. Spid. Dors., p. 596.

An adult male of this striking looking species was found among dead leaves in Bere Wood in May, 1894, by the Rev. F. P. Cambridge.

TAPINOCTBA INGRATA.

Walckenaera ingrata, Cambr. Spid. Dors., p. 443.

Examples were found among moss in Morden Park in October, 1894.

LEPTYPHANTES TERRICOLA.

Linyphia terricola, C. L. Koch. Die Arachn., xii. p. 125,
pl. 425, figs. 1047, 1048.

„ *alacris*, Bl. Cambr., Spid. Dors., p. 190.

Though Mr. Blackwall did not perceive the more than probable identity of his *L. alacris* with the *L. terricola* of C. L. Koch, it seems almost certain that they are of the same species.

It is an abundant spider in the North of England, but rarer in the South. I found an adult male of it on April 28th, 1894, in a copse at Bloxworth, where I had met with it once before, many years ago.

LEPTYPHANTES MENGII.

Leptyphantes Mengii Chyz. and Kulez. Araneæ Hungariæ, Vol. ii., Part I., p. 70, tab. 3, fig. 6.

Adult males of this species were found in my collection among numerous examples of *Linyphia tenuis*, Bl., to which it is nearly allied. I am not positively certain, but believe they were taken at Bloxworth. This is the first record of the species as British.

LEPTYPHANTES TENEBRICOLA.

Linyphia tenebricola, Wid. Zool. Misc. Mus. Senck, p. 260,
pl. xviii, fig. 2.

non. *L. tenebricola*, C. Koch. nec. *L. tenebricola*,
Cambr.

Leptyphantes tenebricola, Wid. F. P. Cambr., Ann. and Mag.
N. II., 1895, Ser. 6, p. 38.

Examples of what appear to be the true *L. tenebricola*, Wid., were found by the Rev. F. P. Cambridge near Carlisle, and also received from Scotland; others were found among my specimens of *Linyphia tenuis*, Bl. The locality in which these last were taken is not certain, but most probably in the Bloxworth district. The

separation of this and the foregoing from among numerous examples of *L. tenebricola*, Cambr. (*L. tenuis*, Bl.) is due to the painstaking efforts of my nephew (Rev. F. P. Cambridge).

The three species are very closely allied, and perhaps only to be distinguished certainly by microscopic examination of the palpal organs, which are differently constructed in each species.

LEPTYPHANTES BLACKWALLII.

Leptyphantes Blackwallii, Chyz. and Kulez. *Aranee Hungariae*, Vol. ii., Part I., p. 79, 1894.

Linyphia terricola, Bl. Spid. Great Brit. and Ireland, p. 237.

„ *zebrina*, Cambr. Spid. Dors., p. 182.

Leptyphantes terricola, Cambr. Proc. Dors., N.H. and A.F. Club, Vol. xii., p. 90.

As it seems pretty certain that the true *Linyphia terricola*, C. L. Koch (with which Mr. Blackwall considered his *L. terricola* to be identical), is the same species as *L. alacris*, Bl., Mr. Blackwall's *terricola* would need another name; this Messrs. Chyzer and Kulezynski have conferred upon it (i.e. supra.)

LEPTYPHANTES TENUIS.

Linyphia tenuis, Bl. Spid. Great Brit. and Ireland, p. 230, pl. xvi., fig. 152.

„ *tenebricola*, Cambr. Spid. Dors., p. 185, exclude synonyms there quoted (*L. tenebricola*, Wid., and *L. terricola*, Bl.)

Much confusion has arisen in respect to Mr. Blackwall's *Linyphia tenuis*, in consequence of examples having been sent by myself many years ago to Dr. Ludwig Koch for determination and received back labelled *L. tenebricola*, Wid.-C. L. Koch; while others sent to Mr. Blackwall, at a period when his eyesight had much failed, were thought by him to be his *L. terricola*. The subsequent discovery, however, of Mr. Blackwall's types of this last species have cleared up this error.

LEPTYPHANTES FLAVIPES.

Leptyphantes flavipes, Bl. Spid. Great Brit. and Ireland, p. 247,
exclude fig. 166, pl. xvii.

" " Spid. Dors., Cambr., p. 517.

It has been very doubtful what spider Mr. Blackwall's *Leptyphantes flavipes* might be until recently. Many years ago, when Mr. Blackwall's eyesight had become weak, he returned me at various times spiders, labelled *L. tenuis*, and at other times similar spiders labelled *L. flavipes*. These spiders bore a very close general resemblance to each other, especially after having been kept a little while in spirit. This of course raised doubts as to the specific difference of these species. Mr. Blackwall having also figured (fig. 166, pl. xvii.) for his *L. flavipes* an undoubted *L. pullata*, Cambr. (a species which Mr. B. himself, after close examination, had decided to be a distinct one), made me conjecture that possibly *flavipes* and *pullata* might after all be identical. However, on recent examination under a microscope of the spiders included above as *L. tenuis*, my nephew (Rev. F. P. Cambridge) and I have had no difficulty in separating by good characters from the true type of *L. tenuis* another spider which exactly agrees with Mr. Blackwall's description of *L. flavipes*, and which there is little reason to doubt is that species. The mistake in figuring *L. pullata* for *L. flavipes* in his work (Spid. Great Brit. and Ireland) probably arose from Mr. Blackwall having unwittingly supplied it to his artist—Mr. Tuffen West—under the idea that it was a true *L. flavipes*. At the time this figure was drawn *L. pullata* (as a described species) did not exist. As a general rule the absence of black spots, more or less distinct, on the abdomen gives a very fair character by which to distinguish *L. flavipes* from *L. tenuis*; the legs also of the former are of a brighter, clearer yellow. The abdomen is of a shiny black when alive and in good condition—i.e., in possession of its full colouring; but after immersion in spirit some transverse angular bars or chevrons on a slightly paler ground generally become visible along the upper side; while in *L. tenuis* the angular bars, ending at each extremity in either a connected or detached spot on a

much paler ground, are always more or less conspicuous. The best distinctions, however, consist in a different structure of the palpal organs of the male. Both species are abundant in Dorsetshire, and probably in most British localities.

LINYPHIA IMPIGRA.

Linyphia impigra, Cambr. Spid. Dors., p. 221.

„ *circumcineta*, Cambr. l.e., p. 191.

In addition to the localities whence this spider has before been recorded, I found adult females of it in August, 1894, among herbage in the meadows on the south side of Wareham.

F A M . E P E I R I D E .

GENUS TETRAGNATHA.

The fact that there were several forms more or less distinct from each other among the spiders included under the name *Tetragnatha extensa*, Bl., has been long known to me; but not having subjected them to a rigid comparative examination they have until lately remained mixed up and been taken cursorily to be mostly varieties of one type—*T. (Aranea) extensa*, Linn. Dr. Thorell recognised several of these forms, but does not appear to have satisfied himself quite as to their specific value (see Thorell, Syn., Europ. Spid., p. 459, *et. seq.*) My nephew (Rev. F. P. Cambridge) has recently put his shoulder to the wheel (or rather his eye to the microscope) and carefully worked out the whole of the available British specimens of this group, and I have myself taken a minor part in the investigation. The result is that we find five well-marked species among the spiders hitherto compared together under *Tetragnatha extensa*, Bl. Several of them may be distinguished by form, colours, and markings, but all by the dentition of the falcies, and some by the relative position of the eyes. My nephew has a note on four of these species in Ann. and Mag. N.H., 1895, Vol. xv., Ser. 6, pp. 37-38: but as he proposes to publish shortly a detailed description and figures of them all I shall here do no more than enumerate the species which we now believe to be British. Four of them are thus new to our British list

TETRAGNATHA EXTENSA.

Aranea extensa, Linn. Syst. Naturæ, Ed. 10, 1, p. 621.

Tetragnatha extensa, Bl. and Cambr. Spid. Dors., p. 244, ad. partem.

Found in various British localities.

TETRAGNATHA PINICOLA.

Tetragnatha pinicola, L. Koch. Beit. Z. Kenntn. d. Arachn. fauna. Galiz., p. 15.

Bloxworth and other localities; also in the lake districts by Rev. F. P. Cambridge.

TETRAGNATHA SOLANDRII.

Tetragnatha Solandrii, Scop. Ent. Carn., p. 397.

Abundant in the Bloxworth district near water.

TETRAGNATHA NIGRITA.

Tetragnatha nigrita, Lendl. (cf. Chyz. and Kulez. Aranear. Hungariæ. Tom. I., p. 144. Tab. vi., fig. 13.)

Locality uncertain, but believed to be Dorsetshire.

TETRAGNATHA OBTUSA.

Tetragnatha obtusa, C. L. Koch. Uebers. d. Arachn., Syst. 1, p. 5.
Bloxworth and other localities.

EUGNATHA STRIATA.

Tetragnatha striata, L. Koch. Corresp. Blatt d. Zool. Ver. in Regensb., p. 79, 1862.

The genus *Eugnatha* is very closely allied to *Tetragnatha*, the chief difference being in the position of the eyes. In *Tetragnatha* the two transverse rows of eyes converge at the ends, bringing the lateral eyes as near or nearer together than the central pairs, while in *Eugnatha* there is a distinctly greater interval between the laterals of the two rows than between the centrals, the two rows thus diverging from each other. Some authors include *Eugnatha* with *Tetragnatha*.

On the 29th of August, 1894, I met with an immature male in the Wareham meadows on the south side of the town; probably at the proper season it will be found there in the adult state and perhaps fairly common. Both genus and species are new to Britain.

EPEIRA ANGULATA.

Epeira angulata, Clk. Cambr., Spid. Dors., p. 270, and Proc. Dors. N.H. and A. Field Club, xii., p. 95, fig. 2.

Specimens of both sexes of this fine species have been taken in the New Forest in July and September, 1894, by Dr. Sharp, Mr. Maeræ, Mr. Cecil Warburton, and Rev. F. P. Cambridge. Among them was the fine distinctly marked variety figured in the plate.

EPEIRA ALSINE.

Epeira alsine, Walek. Cambr., Spid. Dors., p. 560.

An adult female was taken in the New Forest by Mr. Cecil Warburton in August, 1894, adding thus a fresh British locality for this beautiful species, which, however, soon loses its beauty after immersion in spirit of wine.

FAM. ULOBORIDÆ.

HYPTIOTES PARADOXUS.

Hyptiotes paradoxus, C. L. Koch. Cambr., Spid. Dors., p. 532.

An adult male and female and an immature female were found in the New Forest in August, 1894, by Mr. Cecil Warburton. Only one specimen (Cumberland, 1863), had before been recorded in Britain. The adult male is, perhaps, one of the most singular looking of our indigenous spiders; there seems to be considerable variation in the colours and markings of this species.

FAM. THOMISIDÆ.

XYSTICUS VIATICUS.

Xysticus viaticus, C. L. Koch. Cambr., Spid. Dors., p. 296.

Some small very pale adult males of this species were found by the Rev. F. P. Cambridge near Littlesea in May, 1894; and an

adult female of a similar variety was taken by myself near Bourne-mouth, close to the seashore, in June.

OXYPTILA SIMPLEX.

Oxyptila simplex, Cambr. Spid. Dors., p. 324, and Proc. Dors. N.H. and A.F. Club, xii., p. 95.

On the 1st of June, 1894, I found several adult females under dry seaweed, above high water mark, near Chickerell.

OXYPTILA FLEXA, sp. nov.

Adult male, length $1\frac{1}{2}$ lines.

This spider is very nearly allied to *Oxyptila praticola*, Cl. Koch. It is, however, rather smaller (the length of *O. praticola* being very nearly two lines), and may be distinguished at once by the different form of the apophysis of the radial joints of the palpi, as well as by the less distinctly marked sternum. In general colour and markings the two species are very nearly similar. In *Oxyptila praticola* the apophysis at the extremity, on the outer side, of the radial joint of the palpus is long, its longer portion rather slender, sinuous, and tapering to a fine point; in the present species the longer portion is much stronger, not so long as in *O. praticola*, nearly straight, and tapers slightly to an obtuse point. In both species there is a strong bend towards the hinder part of this apophysis. More nearly under the radial joint is another strong apophysis divided into two projections, of which the lower one is slightly bifid at its extremity.

The *palpal* organs are well developed, consisting of several strong and prominent corneous processes. In *O. praticola* the palpal organs are simpler and more compact.

The *cephalothorax* and *abdomen* in both species are furnished with obtuse and clavate bristles, but in *O. flexa* the surface of the cephalothorax seems to be more coarsely granulose than in *O. praticola*.

The *female* resembles the male in colours and markings, though those of the sternum are more distinct than in the male. The form

of the genital aperture differs remarkably from that of *O. praticola*. Only a figure can give any correct idea of this.

An adult male of this spider was found by myself at Tonbridge some years ago, and more recently an adult male and female were contained among spiders collected for me in Wicken Fen by the late Mr. Wm. Farren, and were at the time passed over for *O. praticola*. A few days ago another male taken in Pelaw Wood, near Durham, by the Rev. Mr. Hull was submitted to me for examination.

THANATUS FORMICINUS.

Arcaneus formicinus, Clk. Sv. Spindl., p. 134, pl. 6, tab. 2.

Thanatus formicinus, Clk., C. L. Koch, Uebers. d., Arach. Syst. I., p. 28.

An immature female of this very distinct spider was found among heather near the Beaulieu Road, Brockenhurst, in August, 1894, by Mr. Cecil Warburton. This is its first record as a British spider.

PHILODROMUS FALLAX.

Philodromus fallax, Sund. Cambr., Spid. Dors., p. 335.

Adult males were found at Studland on the 1st of May, 1894, by the Rev. F. P. Cambridge. These are the first adults of that sex that have been met with in Great Britain, those taken by myself near Bournemouth and on the Chesil Beach many years ago having all been females.

F A M. L Y C O S I D E.

TROCHOSA SPINIPALPIS.

Trochosa spinipalpis, F. P. Cambr. Ann. and Mag., N.H., January, 1895, Ser. 6, Vol. xv., p. 28, pl. III., figs. 4, &c.

Two examples of this fine new species (a male and female) were found at Lake Derwentwater in June, 1893, by the Rev. F. P. Cambridge, who also in 1894 found both sexes in some abundance under bits of old board, &c., in water-meadows near Warmwell, Dorset. In my own collection also is a female found in the Eloxworth district by A. W. P. Cambridge in 1892. This is a fine addition to our list of indigenous spiders.

TROCHOSA ROBUSTA.

Trochosa robusta, Sim. Aran. de France; and F. P. Cambr., Ann. and Mag., January, 1895, N.H. (6), xv., p. 30, pl. III., fig. 3, &c.

This is one of the largest of the group, and exceeds in size all our known British species. It was found rather abundantly near Swanage under stones in May, 1894, by the Rev. F. P. Cambridge. On June 1st I met with one (an adult male) underneath dry seaweed at Chickerell. All those found at Swanage were females excepting one. It is new to the British list. Its nearest ally is *Trochosa ruricola*, Degeer, but it may be easily recognised by its larger size and hoary appearance.

LYCOSA PURBECKENSIS.

Pardosa Purbeckensis, F. P. Cambr. Ann. and Mag., N.H., January, 1895, (6), xv., p. 32, pl. iv., f. 1, &c.

This species, new to science, was discovered in abundance on the shores on the west side of Poole Harbour in May, 1894, by the Rev. F. P. Cambridge. It is a very fine and distinct spider allied to *L. monticola*, Clk., and *L. palustris*, Linn., but larger. In the same species are included numerous spiders of very much smaller size, found in 1893 on the shores of the Solway, under the name *R. Purbeckensis*, var. *minor*.

LYCOSA PRATIVAGA.

Pardosa prativaga, C. L. Koch. Die Arachn., Faun. Galiziens, p. 43.

Lycosa riparia, C. L. Koch. Cambr., Spid. Dors., p. 380.

Lycosa prativaga, C. L. Koch. Cambr., &c., p. 381.

It appears that we have not yet discovered the true *Lycosa riparia*, C. L. Koch, in Britain, those hitherto thought to be that species being certainly *L. prativaga*, C. L. Koch.

FAM. SALTICIDÆ.

MARPESSA MUSCOSA.

Marpessa muscosa, C. L. K. Cambr., Spid. Dors., p. 554.

Adults of both sexes of this, which is our largest jumping spider, were found in abundance by the Rev. F. P. Cambridge under stones on walls near Swanage and St. Alban's Head in September, 1894. Only one specimen had previously been recorded in Dorset; this was sent to me by the late Mr. J. Kemp Welch, who found it near Poole. It is a local spider, but generally fairly abundant where it occurs.

HASARIUS ADANSONII.

Hasarius Adansonii, Aud. Cambr., Spid. Dors., p. 566.

An adult female was found in an orchid house near Warrington by Mr. Linnæus Greening. This occurrence adds another to the already recorded localities of this exotic spider in hothouses in England and Scotland.

HASARIUS ARCUATUS.

Hasarius arcuatus, C. L. Koch. Cambr., Spid. Dors., p. 565.

Mr. Cecil Warburton met with an adult female of this rare British spider in the New Forest in August, 1894.

LIST OF SPECIES ABOVE NOTED.

<i>Dysdera erocota</i> , C. Koch	p. 98.
<i>Drassus minusculus</i> , L. Koch	p. 99.
„ <i>pubescens</i> , Thor.	p. 99.
„ <i>infuscatus</i> , Westr.	p. 99.
„ <i>lapidicolens</i> , Walek.	p. 99.
„ <i>cupreus</i> , Bl.	p. 100.
„ <i>maeer</i> , Thor.	p. 100.
<i>Micaria scintillans</i> , Cambr.	p. 101.
<i>Agroeca inopina</i> , Cambr.	p. 101.
„ <i>littoralis</i> , F. P. Cambr.	p. 101.
<i>Zora nemoralis</i> , Bl.	p. 101.
<i>Dictyna arenicola</i> , Cambr.	p. 101.
„ <i>variabilis</i> , C. L. Koch	p. 102.

<i>Euryopis flavomaculata</i> , C. L. Koch	p. 102.
<i>Laseola tristis</i> , Haln.	p. 102.
„ <i>proxima</i> , sp.n.	p. 102.
<i>Onesinda minutissima</i> , Cambr.	p. 103.
<i>Gongylidiellum murcidum</i> , Sim.	p. 103.
<i>Gongylidium distinctum</i> , Sim.	p. 103.
<i>Maso Sundevallii</i> , Westr.	p. 106.
<i>Microneta decora</i> , Cambr.	p. 106.
„ <i>conigera</i> , Cambr.	p. 106.
<i>Baryphyma pratensis</i> , Bl.	p. 106.
<i>Porrhomma egeria</i> , Sim.	p. 106.
<i>Tmetieus Warburtonii</i> , Cambr.	p. 107.
<i>Cornicularia lueida</i> , Cambr.	p. 107.
<i>Panamomops diceros</i> , Cambr.	p. 107.
<i>Lophocarenum parallelum</i> , Bl.	p. 107.
<i>Walekenaera nodosa</i> , Cambr.	p. 107.
<i>Wideria nequam</i> , sp. n.	p. 108.
<i>Plæiocrærus speciosus</i> , sp. n.	p. 109.
<i>Walekenaera melanocephala</i> , Cambr.	p. 110.
<i>Tapinoocyba ingrata</i> , Cambr.	p. 111.
<i>Leptyphantes terricola</i> , C. L. Koch	p. 111.
„ <i>Mengii</i> , Chyz. and Kulcz.	p. 111.
„ <i>tenebricola</i> , Wid.	p. 111.
„ <i>Blackwallii</i> , Chyz. and Kulcz.	p. 112.
„ <i>tenuis</i> , Bl.	p. 112.
„ <i>flavipes</i> , Bl.	p. 113.
<i>Linyphia impigra</i> , Cambr.	p. 114.
<i>Tetragnatha extensa</i> , Linn.	p. 115.
„ <i>pinicola</i> , L. Koch	p. 115.
„ <i>Solandrii</i> , Scop.	p. 115.
„ <i>nigrita</i> , Lendl.	p. 115.
„ <i>obtusata</i> , C. L. Koch	p. 115.
<i>Eugnatha striata</i> , L. Koch	p. 115.
<i>Epeira angulata</i> , Clk.	p. 116.
„ <i>alsine</i> , Walck.	p. 116.

<i>Hyptiotes paradoxus</i> , C. L. Koch	p. 116.
<i>Xysticus viaticus</i> , C. L. Koch	p. 116.
<i>Oxyptila simplex</i> , Cambr.	p. 117.
„ <i>flexa</i> , sp. n.	p. 117.
<i>Thanatus formicinus</i> , Clk.	p. 118.
<i>Philodromus fallax</i> , Sund.	p. 118.
<i>Trochosa spinipalpis</i> , F. P. Cambr.	p. 118.
„ <i>robusta</i> , Sim.	p. 119.
<i>Lycosa Purbeckensis</i> , F. P. Cambr.	p. 119.
„ <i>pratīvaga</i> , L. Koch	p. 119.
<i>Marpessa muscosa</i> , Clk.	p. 119.
<i>Hasarius adansonii</i> , Aud.	p. 120.
„ <i>arcuatus</i> , Clk.	p. 120.

APPENDIX.

The following spiders have been met with since the above paper was in press ; among them are one (*Tmetiscus fortunatus*) new to science, and two (*Lithyphantes corollatus*, C. L. Koch and *Philodromus rufus*, Walek.), new to Britain.

DICTYNA PUSILLA.

Dictyna pusilla, Westr., Cambr. Spid. Dors., p. 426.

Both sexes among coarse herbage in half-dried ponds, New Forest, on June 28th, 1895. I had never before met with the female and very rarely with the male.

LITHYPHANTES COROLLATUS.

Phrurolithus corollatus, Linn., C. L. Koch. *Det. Arachn.*, vi., p. 100, pl. 204, fig. 504, 505.

Lithyphantes corollatus, Thor. *Eur. Spid.*, p. 94.

Two adult females of this conspicuous spider were found by myself on Bloxworth Heath on the 3rd and 6th of May, 1895. This is its first record as a British species.

THERIDION FORMOSUM.

Theridion formosum, Clk. Cambr. Spid. Dors., p. 83.

Rather abundant in their snares among small branches and twigs on the trunks of oaks in the New Forest, June 11th, 1895. Only three or four males were found, as it was rather late in the season for this sex.

LEPTYPHANTES OBSCURUS.

Linyphia obscura, Bl. Cambr. Spid. Dors., p. 188.

Both sexes abundant on low trees and bushes in the New Forest, June 11th and 12th, 1895.

TMETICUS FORTUNATUS, sp.n.

Adult male, length very slightly over 1 line.

Cephalothorax oval, longer than broad, obtusely rounded before; lateral marginal impressions at the caput scarcely perceptible; profile of caput behind the eyes convex, with a very slight dip before the beginning of the hinder slope, which is gradual and very slightly convex. The height of the clypeus exceeds half that of the facial space and slopes slightly forwards. The colour of the cephalothorax is dull yellow-brown tinged with olive, and suffused with blackish, which indistinctly defines the normal converging indentations of the thorax. Along the middle of the caput from the eyes are some bristly hairs in a single longitudinal line.

Eyes of moderate and nearly equal size in two transverse curved rows; the convexity of the anterior row directed forwards, that of the posterior row backwards. The curve of the anterior row is strongest, that of the posterior very slight. The eyes of the posterior row are equidistant from each other. The fore-central pair are larger than the hind-centrals, and, with the latter, form a quadrangle whose opposite sides are equal, but whose length is distinctly greater than its breadth. The eyes of each lateral pair are placed obliquely; they are contiguous to each other, the fore-laterals being the largest of the eight.

Legs moderately long, slender, of a dull olive-tinged yellow-brown colour, the tibiae, tarsi, and metatarsi being of a deeper hue than the

rest; they are furnished with coarse hairs and a single slender spine on each of the genua and tibiae; on the latter it is placed near the posterior extremity of the joints. There appears also to be a similar spine beneath the anterior extremity of the femora of the legs of the third and fourth pairs.

Palpi short, similar to the legs in colour excepting the radial and digital joints, which are dark brown. The cubital joint is very short and bent; the radial large, of a very spreading form both on the sides and in front, it has an angular point at the margin both in front and on the outer side, and the surface is furnished with coarse hairs. Close to the base on the inner side of the humeral joint of the palpus is a minute tooth, exactly in position to strike, by an up and down movement, across the ridges mentioned below on the outer sides of the falces, and probably correlated with these ridges for the purpose of stridulation. The digital joint is of great size, as long, or longer, than the whole of the rest of the palpus, with an obtuse prominence at the base, and a large rather rounded lobe on the outer side. The palpal organs are highly developed, prominent, and complex. Among the corneous processes a long prominent one, rather on the inner side, has its slightly enlarged, but pointed extremity, furnished with minute denticulations, or spiny points. Only a figure, however, can give an adequate representation of the structure of these organs, which are very distinct and characteristic.

Falces long, strong, slightly divergent at the extremity; a single row of very minute teeth along the inner margin, and a row of stronger ones on the upper margin of their extremity, with a not very large prominent tooth near their extremity on the upper side in front. The outer sides are strongly marked with transverse ridges or striae, supposed to be part of a stridulating apparatus.

Maxillae strong, inclined to the labium, obliquely truncated at their extremity and very convex on their outer surface.

The *labium* is broader than long, one-third the width of the sternum at that end, narrower at the apex, where it is somewhat rounded, than at the base, and very strongly impressed across the middle.

Sternum about as broad as long; it is of a simple shield-shape, its posterior extremity produced between the coxæ of the fourth pair of legs, its extreme end spreading, notched, and of a fish-tail form.

Abdomen oval, black, surface glossy but rough, and covered with minute granulations and short coarse hairs. Across the under-side close in front of the spinners is a transverse lip, probably the entrance to a spiracular organ.

A single adult male of this spider was found by my nephew, the Rev. F. P. Cambridge, in the Wareham Meadows, on the Purbeck side of the town, on the 27th of May, 1895.

GONGYLIDIELLUM MURCIDUM.

Gongylidiellum murcidum, Sim. Ar. de Fr, tom. 5, p. 608.

Two adult males among coarse herbage in a half dry pond, New Forest, June 12th, 1895.

THERIDIOSOMA ARGENTEOLUM.

Theridiosoma argenteolum, Cambr. Spid. Dors., pp. 428 and 572.

Both sexes abundant among grass and water weeds in half-dried ponds near Brockenhurst on June 12th, 1895.

ENTELECARA ACUMINATA.

Theridion acuminatum Wid. Zool. Misc. Arachn., p. 226, pl. xv., fig. 11.

Entelecara acuminata, Sim. Aran. de. Fr. 5, p. 619.

Walckenaera altifrons, Cambr. Spid., Dors., p. 169.

An adult male, among herbage, New Forest, June 12th, 1895.

HYPTIOTES PARADOXUS.

Hyptiotes paradoxus, C. L. Koch, Cambr. Spid. Dors., p. 532.

Both sexes not unfrequent, but not yet in the adult state, were found on June 11th, 1895, by my nephew and myself, on dead lichen-covered branches of black thorn and white thorn

bushes in the same locality in the New Forest as that in which Mr. Cecil Warburton found this species in August, 1894. We had the pleasure of seeing one in its snare and witnessing the sudden release by the spider of its trap-line, while at the same time it gave a sudden leap forwards in the direction of the snare.

EPEIRA ANGULATA.

Epeira angulata, Clk. Camb. Spid. Dors., p. 270.

Both sexes, adult and immature, not rare on stunted lichen-covered white thorn branches, near Brockenhurst, June 11th, 1895. There were, however, very few yet in the adult state. It appears to be subject to much variety in colour and markings.

PISTIUS TRUNCATUS.

Pistius truncatus, Sim. Ar. de Fr. tom. 2, p. 258.

An immature female of this rare spider was found among coarse herbage in a half-dried up pond near Brockenhurst on June 12th, 1895.

PHILODROMUS LINEATIPES.

Philodromus lineatipes, Camb. Spid. Dors., p.p. 334, 538, and Proc. Dors. N. H. and A. F. Club, 1893, Vol. xiv., p. 161.

Females in the adult state were found on Scotch-fir trees in fair abundance, but males rarely, near the Baulien Road, three miles from Brockenhurst, on June 12th, 1895.

PHILODROMUS RUFUS.

Philodromus rufus, Walek. Simon. Ar. de Fr. tom 2, p. 287.

Adult male, length $1\frac{3}{4}$ line.

The general form of this spider is of the normal type.

The *cephalothorax* is of a pale dull orange-yellow-brown colour, spotted and veined chiefly on the clypeus, sides, and occiput with deep red-brown, some of the veins indicating the normal lateral converging indentations. There are also some bristly hairs on the caput and clypeus.

The *eyes* are small, not differing much in size, and seated on strongish, rounded, separate grey tubercles. They are in the ordinary two curved rows, the anterior row much the shortest and most curved, the convexity of the curves directed forwards. The interval between the hind-central pair is considerably greater than that between each of them and the hind-lateral eye on its side. The height of the *clypeus* is less than half that of the facial space.

The *legs* are long, rather slender; 2, 1, 4, and 3 of a pale greenish-yellow hue, the tarsi, metatarsi, and tibiae tinged with reddish-brown; they are distinctly spotted with small red-brown spots; they are furnished with hairs and spines, the latter strongest and most numerous on the tibiae and metatarsi; the tarsi end with a small black claw-tuft.

The *palpi* are rather short, similar to the legs in colour markings and armature; the cubital and radial joints are of usual length, the radial has its extremity on the outer side produced into a strong obtuse, obliquely, and roundly truncate apophysis, whose upper extremity is furnished with a very characteristic curved nail or claw. The digital joint is of moderate size and short-oval form; the palpal organs are not complex, but tolerably prominent and well developed with a strongish black curved tapering adherent spine on their inner side springing from their base and directed forwards over their surface.

The *falces* are moderately strong, sub-conical (or tapering), and similar in colour and markings to the legs.

The *maxillae*, *labium*, and *sternum* are similar in colour and markings to the legs, the sternum, perhaps, rather more coarsely spotted with deep red-brown spots.

The *abdomen* is of an oblong-oval form truncated before and the sides but slightly curved; it is of a dull pale yellowish hue obscurely mottled with white and speckled with minute black spots or points, the white shewing most in two short divergent lines at the fore extremity and along the middle and sides of the hinder half, where it faintly indicates the normal angular bars or chevrons and lateral oblique lines. It is thinly covered with short hairs and

a few bristly upturned ones at the anterior margin. The under side is similar in colour and markings to the upper side with a faint dark central longitudinal diffused line. The spinners are normal.

From all our other known British species of *Philodromus* this very distinct one may easily be recognised not only by its colours and markings, but by the peculiar form of the radial apophysis of the palpi. A single adult male was found by myself by sweeping among grass and coarse herbage in the swampy bottom of a small pond near Brockenhurst in the New Forest on the 12th of June, 1895. A comparison of this specimen with French types of *Philodromus rufus*, Walek., received from Mous. Eugène Simon, proves its identity with that species. This is its first record as a British species.

LIST OF SPIDERS IN APPENDIX.

<i>Dietyna pusilla</i> , Westr.	p. 122.
<i>Lithyphantes corollatus</i> , Linn.	p. 122.
<i>Theridion formosum</i> , Clk.	p. 123.
<i>Leptyphantes obsenrus</i> , Bl.	p. 123.
<i>Tmeticus fortunatus</i> , sp.n.	p. 123.
<i>Gongylidiellum mureidum</i> , Sim.	p. 125.
<i>Theridiosoma argenteolum</i> , Cambr.	p. 125.
<i>Entelecara acuminata</i> , Wid.	p. 125.
<i>Hyptiotes paradoxus</i> , C. L. Koch	p. 125.
<i>Epeira angulata</i> , Clk.	p. 126.
<i>Pistius truncatus</i> , Pall.	p. 126.
<i>Philodromus lineatipes</i> , Cambr.	p. 126.
„ <i>rufus</i> , Walek.	p. 126.





Dorset and King John.

NOTES ON THE PIPE ROLLS (DORSET) OF THAT REIGN,
SUPPLEMENTED AND ILLUSTRATED BY REFERENCES TO THE PATENT
AND CLOSE ROLLS OF THE SAME PERIOD.

Part 2.

By the Rev. W. MILES BARNES.

JOHN 6 (A.D. 1204-1205).



ALAN DE WHITON appeared at the exchequer for Hubert de Burgh, the sheriff of Dorset and Somerset, and accounted for £120 blank the firm of the county of Dorset. The Knight's Templars received two marks, one mark from each County.

The sheriff paid in respect of lands granted in Dorset to William, son of William de Lanualein, £10 blank in Shaftesbury to Baillebien 30s. in Lanham. To Alan, the steward, 6 marks and 5s. in Dalewude and Whitewall pertinences of the manor of Fordington. To Turstan, son of Godfrey, 5s. in Dorehester. To the Church of Wells 4 marks in the hundred of Piddletown, besides £14 in North Cury. To the monks of Bindon 20s. in the mill of Fordington, which they hold by gift of the King. To the heirs of William de Bikelcia £8 in Holwell.

The pay of the Chaplain of Dorchester was again 50s. Hugh de Wells, Archdeacon of Wells, received £8 blank in Cheddar and Hugh de Nevil 30s. 5d. ; each of them as custos of the King's houses at Gillingham, the former for a half year custos of Axbridge as well as of Gillingham. William de Mera with his assistant falconers was paid £11 10s. 6d.

For the feast supplied to the poor at the first incoming of the King to his houses at Gillingham £11 12s. 2d. was spent. The wooded country round Gillingham had been from early times a favourite hunting ground of the Kings of England, and King John was not blind to its advantages, but the mansion there was evidently not up to the requirements of the day as a royal residence, and very much had to be done to it ; indeed, it seems to have been rebuilt at this time, for the large sum of money spent on the houses £279 7s. 4d., equivalent to fifteen or twenty times the amount in the money of the present day, and the long time the work was in hand, showed that something more than repairing and decorating was required. Commenced in A.D. 1200 they were not finished apparently before 1203, when they were put in the charge of Hugh de Nevil. They were now ready for the reception of the King, and right royally did the King celebrate his first entrance into them on June 23rd, 1204. £11 12s. 2d. was the sum spent in feasting the poor in honour of it, and compared with the alms 9s. 4½d. to the 100 paupers whom the King feasted because he eat flesh twice at Lambeth on the Friday next before the Ascension (1), £11 12s. 2d. would have feasted a very large number of persons. They could not have been all of them Gillingham men. The royal feast at Gillingham and the royal residence just finished there, and the royal presence and court would attract Dorset people of all degrees from all parts of the county, and afford subjects for conversation by Dorset firesides for generations ; from these old rolls we learn who were the magnates in the Dorset of those days, and from them we might name some who almost certainly would have been

(1.) From an extract by Sir T. Hardy from the Misc. rolls of John 14.

present on the occasion. Besides these there would be the Knights attending on the King; we can picture them in their long hauberts of mail with sleeveless surcoats of rich material over them, their heads covered with cylindrical flat-topped helmets, their long swords suspended from broad straps and bearing long shields, armour such as we are familiar with in the effigies of Knights who served in the third Crusade, which was the type of armour used in this reign. King's Knights were paid 2s. a day (1); and the King's Crossbowmen, were they there, too? as well as the 24 archers by whom he was always attended. "Master Peter, our crossbowman," was paid in this year by the King's order for service in the county 9d. a day, which was the pay of a crossbowman with two horses, an artillery officer in fact. And Master Roger de Cocina 7d. a day "besides what they had reasonably laid out in yarn and cords for the crossbows and for gut and glue,* "*in nervis et visco*" (2). Of course ladies would be present; the most noble of them would be robed in brocades enriched with orphraies, the mantles and supertunies furred with miniver, some perhaps with ermine like the queen's; and encircling the graceful flowing robes would be girdles; some of precious metals chased and jewelled. Girdles were largely used in this reign; frequent mention is made of them. The present of a girdle was as much prized in King John's reign as a present of a bracelet or a gold watch in the present reign. The Bishop of Winchester had good reason for remembering this, for King John fined him heavily for not putting him in mind of a girdle he had promised to a certain Countess; the Bishop, perhaps, felt that he was keeper of the King's conscience as well as of his memory, and for that reason conveniently forgot it. The King's expenses at Gillingham for the three days, June 23-26, amounted

(1.) P.R., 6 John, April 3rd.

* A correspondent gives resin as the equivalent of visco, but in the Fabric Rolls of Yorkminster, under the head of *expensæ minutæ* in the *Computus Majistri Thome Marsar* a 29 Nov. 1530 usque 29 Nov. 1531—a passage occurs "*pro cera, resina, visco, &c.,*" from which it would appear that *resina* and *visco* were not the same substance.

(2.) C.R., 6 John.

to £26 sterling (C.R., John 6, June 29). John was pleased with Gillingham and his houses there ; the first sight of the place charmed him ; we know it as surely as we should have done had it been recorded in his own hand-writing, for on the very day of his arrival he made provision for an early return there, one of his first acts was to order ten tuns of wine with one tun of Angers wine and one of French wine to be sent there at once (C.R., 6 John, June 23), and as a matter of fact he *did* return there on Nov. 18th to the 30th, and again from Dec. 3rd to the 6th of this year. To pay for the work at Gillingham an aid was levied throughout the Counties of Dorset and Somerset, and 100 marks were received by the Coroners of those Counties in respect of it and by them paid to the Treasury. Sixty marks was paid to the wardens of these works.

£137 5s. 4d. was a large sum of money to spend upon Corfe Castle in one year (1) ; if the ruins were examined they might show what additions were made to the ancient castle in John's reign. That additions were made is clear from a later entry in the roll, which states that the wardens of the *new works* at Corfe were paid 40 marks. William de Boseus and Robert de Claville were the viewers.

For works at Bere £7 17s. 4d. was paid and £8 13s. 10d. for the repair of the King's houses, mews, and smithy. £49 1s. 8d. was the cost incurred for the support of the Knight's hostages confined in the Castle of Sherborn, upon which castle 100s. was spent in repairs.

Two hundred poor persons received relief at the cost of the King from May 13th to Aug. 15th in the county of Dorset, and the same number in Somerset at Ilchester and Marlborough in Wiltshire for the same term.

The Prior of Frampton, as warden of the manors belonging to the Abbey of Caen, responds for them at the Treasury. Relating to the abbey is the instruction that the Prior of Frampton has paid in our

(1.) The order for the re-payment of the sheriff is dated Sept. 28th. (C.R.)

chamber at Winchester 300 marks of his fine for his land, and more is not to be required of him. (C.R., John 6, Oct. 5th.)

The roll of this year contains also entries respecting the pay of crossbowmen and their clothing; the victualling of Salisbury Castle, the payment of the expenses of the King's niece, the beauty of Bretagne confined in Salisbury Castle, and other matters.

THE CLOSE ROLLS

Commence with this year, and there are several entries in them which relate to Dorset; amongst the first is one relating apparently to a Martinstown man. The custody of the lands in Somerset and Dorset of William de Newmarket, who had become a leper, was committed to Godfrey de S. Martin "so that he might answer for them at the exchequer, and if he (William de Newmarket) have given away any of his lands after he fell sick of the leprosy you shall cause the same to revert to the Barony." (C.R., June 5th.)

Opinion is divided as to whether the leprosy was in England a bar to descent, and the entry casts no light upon the point; all the information we can glean from it is to the effect that there was a nervous anxiety lest a leper should respond in person at the Court of the Exchequer and carry infection there, and that the lands of lepers were in consequence taken into the King's hands, and that a man afflicted with the leprosy would be likely to give away his lands to his friends and relations, with whom possibly he could make a private arrangement, rather than they should be farmed by a stranger appointed by the King.

The King was at Dorchester in this year for the first time namely, on July 3rd and 4th. On the latter day he received in his chamber at Dorchester 300 marks of a fine made with the King for deforesting Devonshire (C.R., July 4th). The old nursery rhyme which represents the King in his chamber counting out his money is historically accurate for these times, the early Kings frequently received money in their chamber; it was not the exception to do so.

Wareham was a much frequented seaport, and the monks of Beaulieu are supplied from thence by order of the King with thirty marks worth of corn for restocking their abbey. (C.R., July 8th.)

William de Blunville, Constable of Corfe (C.R., Aug. 2nd), William Mercator, and his associates with the King's falcons, was paid £11 10s. 6d. by the Sheriff of Dorset. (C.R., Aug. 15th.)

Custody of the lands of Sturminster committed to Thomas de Rocheford. (C.R., Aug. 23rd.)

Sturminster to be committed to Earl Marshall, stock and manor to be valued. (C.R., Sept. 9th.)

Earl Marshall to have William Martell's estates in Somerset and Dorset, valuation to be taken. (C.R., Sept. 9th.)

The Sheriff of Somerset to have as many sheep as are necessary for restocking Uphaven at the price at which they were valued for restocking "our manor of Bere." (C.R., Oct. 3rd.)

Geoffrey de Nevill to have 50 solidates of land in Knowle, Steeple, and Creech, which was Robert de Tiboville's, for the custody of "our manor of Corfe." (C.R., Oct. 4th.)

The following extract from the C.R., Oct. 26th, relates to the wife of one of the Belets, and it affords an illustration of the unsentimental manner in which marriages were contracted in King John's reign and of the kind of pressure put upon ladies to marry the men selected for them by their guardians:—"Know that we have given in marriage to Randolph Tirell, our servant, a daughter of Fulk de Oiri, who was wife of J. Belet, and we command A herself that she receive him as her husband, which, if she is unwilling to do, we command you that without delay you cause our beloved Hugh de Nevill to have her land."

Grael, our knight, to have the land in Pinipere (Pimperne), which was Guido Droens. (C.R., Nov. 6th.)

Venison to be sent up from Newton to Tewkesbury. (C.R., Nov. 30th.)

The Sheriff of Dorset to be repaid what he has laid out on the repair of our houses at Dorchester and of our pigeon house. (C.R., Dec. 3rd.)

Geoffrey de Nevill to have the lands of Dewlish, which were Robert de Gaviz. (C.R., Dec. 5th.)

Roger de Miliers to have 100 solidates of land of the lands which were Thomas Malfisastre in Winterborne, the remainder of the land to be reserved for the King's use. (C.R., Jan. 13th.)

Wine to be carried from Southampton, to Cranborne 3 barrels, to Dorchester 8 do., to Gillingham the same, to Bere 5 barrels, to Sherborne 3 barrels. (C.R., Jan. 13th.)

Geoffrey de Saucusmar to have 50 marks of land of the land of Randolph de Tylli in Dorset if he has so much land there. (C.R., Feb. 28th.)

Richard del Estre to have peace of all the debts and usuries owed to the Jews and to the Crown so long as he is in the King's service in Picardy. (C.R., Apr. 3rd.)

The possessions in Dorset of the Prior and monks of S. Swithin in Winchester to be protected so long as the Prior is in the King's service beyond the sea. (C.R., Apr. 4th.)

The Constable of Corfe to deliver to Peter la Warr, or to his messenger, Simon, his son, held as a hostage. (C.R., May 11th.)

There were wild cats in the forests of England at this time. Amongst the

PATENT LETTERS

of this year is one to the King's foresters giving licence to G. de Canvill to take leverets and cats (*leporē wlpē 't murelegū*," Jan. 27th).

The Sheriff of Dorset with other sheriffs ordered to provide for the defence of the Kingdom as follows :—

Each group of nine Knights throughout the Kingdom to find a tenth Knight for service in the field, well equipped with horses and arms, and to provide pay for him at the rate of 2s. a day ; the Knights to be in London about Easter. Regulations concerning this order and pains and penalties for disobeying it. (Ap. 3rd.)

7 JOHN (A.D. 1206-7).

William de Montacute and Osbert Clerk as wardens represented the sheriff at the Exchequer.

After the usual entries in the Pipe Rolls of this year we have the payment of 100 marks for building galleys for the King. This was doubtless part of the King's naval preparations for the defence of his possessions in France, undertaken in the previous year ; but Dorset was called upon to do more than this. The sheriff was ordered by close letter (John 6, May 9th) to pay attention to what Geoffrey Couclove should tell him about preparing boats (cleies) and to supply money for bringing ships to Dartmouth, and the Pipe Rolls give the cost as £23 6s. 8d.

Three hundred and two sheep were purchased in Dorset for restocking the King's manor de la Riviare or Rivere near Dover. The cost was £17 6s. 1d. Sixteen pence was the price paid for a sheep in 8 John. (May 27th, C.R.)

One hundred quarters of corn were purchased for 5 marks and sent by Richard de Mora to Peak in Derbyshire. Dorset was as famed in John's day as in the present day for its corn and sheep. There is frequent mention of corn purchased here for use elsewhere. In the same year there is an order to the Sheriff of Dorset to send fifty measures of barley to Portsmouth by Pentecost (C.R., John 6, May 1st), and again on the same day for a further supply.

The only visit of the King to Bridport recorded was on April 20th, 1201, but he must have visited Bridport in 1204 or 1205 also, for the sheriff claims 50s. 9d., the expenses of the King there, and 26s. for the expenses of the Queen at Dorchester on Jan. 4-5, 1205. The order for payment is dated June 26, 1205. (C.R.)

The sheriff paid 3s. 4d. for the conveyance of the King's records from Dorchester to Marlborough. As the King travelled from place to place the treasury and its records preceded or followed him. Among the records were doubtless the Pipe Rolls of the previous years which have already come under our observation.

The hostages in the King's keeping were provided with garments at the King's expense ; two marks were paid for clothing for those in Dorset Castles.

Small sums were paid for conveying the King's venison from Harfoot Lane to Gillingham and from Newton to Teukesbury, and

3s. for salting venison. The Close Rolls give the date of the order for bringing the venison to Gillingham, namely, Sep. 6th. Except perhaps at Christmas the meat consumed during the winter was salted meat, in the autumn the surplus stock of sheep, cattle, and venison was killed and salted down for winter use, for no artificial foods were used and apparently but little hay was made for winter feeding, and the pasture lands would support only a limited amount of stock during the winter months; judging by the dates of mandates issued for the purchase of salt, and the pay of persons who were charged with the duty of salting carcasses, September was the month for this work. Thus on Sep. 3rd of this year a mandate of the King to the Barons of the Exchequer commands them to "reckon to William Montacute, Sheriff of Dorset and Somerset, what he has reasonably laid out in salting and curing our venison, which we committed to his charge" (C.R.), and on Sep. 21st Buistard is charged to "find salt for salting our venison." (C.R.) The salt diet throughout the winter, and the lack of vegetable food was productive of scurvy, and is thought to account for the prevalence of leprosy in England in those days, as the large use of salt fish in Norway in the present day is said to account for the leprosy which is still prevalent there.

13s. 4d. was paid for the keep of the sick horse of Randolph Parumttarius and its attendant at Bere; in the close letter relating to this circumstance and in other entries in this roll Randolph is called Parmentarius, "man-milliner." There is a great deal about Randolph in the C.R. In 8 John, May 8th, he is called "*serviens de camera nostra*," equivalent perhaps to groom of the chamber, and from the close letters relating to him we may gather what might have been the duties of a groom of the chamber in John's time. Besides the ordering and distributing of clothing, cloaks, and other robes, about which there are several entries, he was evidently in the King's confidence, and was entrusted with confidential duties; he carried precious stones to the jeweller to be set for the King; he paid on one occasion at least, the King's expenses; he was a frequent witness to the King's signature; he

received corn probably for the garrisons and quarrells for their crossbows; on one occasion several knights and other prisoners of the King were delivered into his charge. The King gave him a house in London and another in Winchester, the latter on May 3rd, John 8. As the house in Winchester was afterwards given to Will Scissori, to "William the seissors man," it is probable that Randolf died in that year and was succeeded by another man-milliner or tailor, as seissori seems to imply.

On June 25th, 1205, the King gave an order for the purchase of a "fair cross for placing in our chapel at Bere" (C.R.), and in this year's pipe rolls the sheriff claims the cost of it, 5s. £6 10s. was spent on the King's houses at Dorchester.

Margaret de Luei paid 40 marks for having her reasonable dower on the death of her husband and for permission to remain a widow so long as she pleased, but if she married she was to marry by counsel and assent of the King and Geoffrey de Luei. The King's commands for the marriage of his wards was a little peremptory sometimes, and did not show much respect for the feelings of the ladies concerned. Here is an order given in this same year: "Know that we have given to Henry, son of the Earl Ed, the daughter and heir of Randolf de Cornhull with the land belonging to her, and so we command you that you cause him to have her and her land without delay." (C.R., 7 John, June 6th.)

Hugh de Neville held the Manor of Gillingham. Peter Medlent, who had been disseized of his land at Cnounton "by reason of the Normans," was reinstated.

Tallage was paid by the inhabitants of Stokes Merstene, St. Edwards (Shaftesbury), Gillingham, Dorchester, Cheddar, Milbourn, Holwell, Fordington, Wareham, Bere, Studland, Charlecote, Crook, Kinton, Bridport, Marshwood, etc.

Hugh, son of William, paid £1 for having his suit about the advowson of the Church of Melcombe in the King's Court.

From an entry in the Pipe Roll it appears that the Manor of Kingston was sold in this year to Saiero de Quenci.

The Patent Rolls of the year contain two licences to Alexander de Warcham to trade with Normandy in salt and leather. (P.R., Jan. 12th.)

Hubert de Burgh to have the custody of the lands in Somerset and Dorset of the heirs of Robert Beauchamp. (P.R., April 17th.)

On the back of Memb. 5 is a charter from Dionysius Abbot and the Convent of Cerne quit claiming to John, the illustrious King of England, all their rights in the park and vivarium of Nettlecombe in return for the lands of Nettlecombe and its pertinences.

Besides the extracts already given from

THE CLOSE ROLLS

there are other letters relating to Dorset, the subjects of which are given below.

Four doliums of white wine and four of "alnet" to be sent from Southampton to Gillingham. (July 11th.)

Rations to be supplied to William de Oyflur and keep for the dogs so long as they are at Cranbourne. (July 30th.)

The Manor of Winterborne Stickland which belonged to the Canons of Constance granted to Robert de Berners. (Aug. 26th.)

Alexander of Warcham to be repaid what he has laid out in purchasing the King's wines and for carrying them to their destination. (Aug. 25th.)

Robert de Newburgh to have full seizin of 8 librates and 100 solidates of land in Fordington which the King had given him in exchange for Poorstock and its pertinences. (Sept. 7th.)

William de Montacute to have the custody of Poorstock and the woods by the road which runs from Dorchester to Bridport on the right side up to Blackmore ; the woods to be well guarded ; it would not be necessary to have them viewed, because the King when he was there had left them well stocked with game. Osbert Quarel and his associates to be guardians of the woods, but to be responsible to William de Montacute. (Sept. 21st.)

William son of Walkelin to have the lands of Majeston. (Oct. 2nd.)

Robert de Mandeville has made fine for having the honour of Marshwood with all its pertinences and liberties. (Feb. 14th.)

The Sheriff to find carriage for the King's venison through Dorset. (April 17th.)

The Sheriff of Devon to procure for the Sheriff of Somerset and Dorset 100,000 nails (azeisia) for building "our houses at Poorstock" and to deliver them at Bridport. (April 17th.)

Alan, the steward, to have full seizin of the lands in Dalewud and Witewell whilst in the King's service with the queen. (Oct. 3rd.)

Five doliums of wine to be sent to Bere, five to Dorchester from Southampton. (Oct. 25.)

Hubert de Burgh's lands to be taken into the King's hands. (Oct. 29th.)

G. de Luey quit claimed of the 5 marks which he owed to the King in respect of the Manor of Long Blandford (?) (Langeblanf). (Nov. 7th and 12th.)

The Sheriff of Dorset to be repaid what he has laid out on the repair of the King's houses at Poorstock and for stocking the manor thereof. (Nov. 13th.)

Six palfreys to be sent to Dorchester and special care to be taken of them. (Dec. 5th.)

The Sheriff to conduct safely Thomas de Sanford, the King's messenger, with a thousand marks, and to find carriage for them from Dorchester to Dartmouth; the money there to be delivered to other messengers to be carried into Poitou. (Jan. 3rd.)

William, son of Walkelin, to have seizin of his lands of Kinton and Mageston. (Jan. 8th.)

Alexander of Wareham to be paid for the carriage of 10 tuns of wine brought from Southampton to Wareham, Bere, and Dorchester, and two tuns carried from Sherborne to Soc. (Jan. 12th.)

Eight of the King's horses with their grooms sent to Dorchester to be well looked after. (March 9th.)

Nine of the King's horses sent to Dorchester with four grooms under the charge of Thomas de Land. (March 18th.)

The Sheriff of Dorset to inquire whether the Church of All Saints, Dorchester, was of the value of more than 20s. per annum, and to present to the Bishop of Satesbury to be appointed to it Master H. de Hereford. (May 1st) Master Henry de Hereford was one of the two clerks of the King's chapel who sang "Christus vincit" before the King at Guildford on Easter Day, 1205, and again on Easter Day, 1207, the singers so pleased the King that he ordered 25s. to be presented to them. (C.R., 6 John. Ap. 12th and 8 John. Ap. 22th.)

8 JOHN (A.D. 1207-8).

The firm of Dorset was £120 blank, of Somerset £355 blank. William de Montacute and Osbert eleric were custodians.

The pay of the Chaplain of Dorchester was 50s. Hugh de Nevill was paid 30s. 5d. for the charge of the King's "Castle" at Gillingham.

Walter Luparius—Walter the wolfer—received 10s. 3d. for making traps for taking wolves.

Drinkpin Crossbowman and his associates received their pay, £90 4s., from Michaelmas to Easter.

£10 13s. 9d. was spent on the King's horses and the pigeon-houses at Dorchester.

Oxen, sheep, and a large quantity of corn was purchased in Dorset and sent, some to Portsmouth, and 243 quarters to Rapella. The eight men who carried the corn to Poicto were seven weeks in doing it, and were paid about 2s. a week each, which included, I suppose, the hire of ships, if hire was paid for them, as well as the wages. According to the Close R. (July 2nd) corn was also purchased here for Guernsey.

The large sum of £104 was laid out on the King's houses at Poorstock. Robert de Lhac and Richard de Claveston were the viewers there. The Close Rolls give June 1st as the date of the order for payment. One other payment in respect of these houses will be found in the roll of the following year, but as the houses were completed this year it seems fitting at this point to examine

the notices scattered over the several records and see what, when pieced together, we can learn from them about the King's possessions at Powerstock and the origin of the King's house there.

The King gave a part of the Manor of Fordington for Powerstock and its pertinances. In C.R., Sept. 7th, 7 John, A.D. 1205, the King commands the Sheriff of Dorset to cause Robert de Newburgh to have seizin of eight librates and 100 solidates of land in Fordington which he had given him in exchange for Powerstock and its pertinances. As Powerstock was an Honour or Barony it must have been held by Robert de Newburgh of the King in capite; after the exchange it would be held by the King himself in demesne. This accords with the Testa de Nevill, a record of a century later which states that it was then held by the King in demesne. The date of the above extract fixes the actual date of the exchange, Sep. 7th, A.D. 1205, but the agreement between the King and Robert de Newburgh must have been arrived at much earlier than this, for the King on April 17th previously ordered materials to be provided for the building there (C.R., Ap. 17th, 1205, John 7), and some progress must have been made with the work, for on November 13th of the same year the Barons of the Exchequer are ordered to pay the Sheriff what he had laid out on the buildings at Powerstock. (C.R., Nov. 13th, John 7.) A second payment was ordered, as we have seen, on June 1st of this year and a third on June 17th, 1207. (John 9.) The work extended over a considerable time. In the Pipe Rolls these payments are given—namely, £104 in John 1, two sums of £25 each in John 9; £154 in two years. This would be equivalent to nearly £3,000 in the currency of the day, not an inconsiderable sum to be spent on repairs, for it seems probable, judging from the wording of the extracts, that an entirely new house was not built for the King, but that Robert de Newburgh's mansion house, which we may reasonably suppose was at Powerstock, since that was the head of the Barony, was repaired and enlarged. A comparison of the entries relating to the works at Powerstock with those relating to buildings elsewhere will make this more evident. Take Cranborne as an instance. The nature

of the work there is thus described in the Close Rolls "*i edificōne domoꝝ n̄rārū de Craneburn*," whereas in the Pipe Rolls the work at Powerstock is described as "*i repatiōe domoꝝ Pourstoch*" and "*i opatiōe domoꝝ de Pourstoch*." The repairs were, however, of an extensive character. The 100,000 nails purchased for use there are proof of that. I do not find any evidence of a royal residence at Powerstock before John's reign.

As soon as the houses were finished, the King ordered wine to be sent there; one barrel on February 18th, 1207, one tun on July 6th, 1207, and three barrels of Anjou wine on March 21st, 1208.

To return to the Pipe Roll, £10 13s. 9d. was the cost of the repairs to the King's houses and pigeon houses at Dorchester. Adam Capie and Randolf Lundefare were the viewers. The tallage was accounted for as follows:—Bridport, 17s. 10d.; Fordington, 3s.; Dorchester, 51s.; Bere, 7s. 4d.

Baldwin, Prior of Loders, accounts for two palfreys for holding certain lands. As he pays five marks in lieu of one palfrey we get the value of a palfrey in King John's days—namely, £3 6s. 8d. allowing for the difference in the values of money, a good horse fetched very much the same price then as now.

Alexander, a merchant of Wareham, paid two tuns of wine to the King and two barrels to the Queen for licence to carry a ship-load of salt and hides into Normandy.

The Abbot and Convent of Cerne paid thirty marks as succession duty for the lands of the Nettlecombe, of which the vivaria and park were reserved for the King in accordance with the terms of the Charter referred to before.

There are certain towns also mentioned in this Roll as having paid sums of money as custom on corn of the town sold.

There are some entries of interest in the

CLOSE ROLLS

of this year.

Ten shillings was the cost of conveying the King's treasure from Devizes to Dorchester. (C.R., May 25th.) In his progress through

the country the King frequently received money in his chamber in discharge of fines and other dues. If the receipts exceeded the payments there would frequently be a considerable sum of money to be moved from place to place. The money was packed in sacks and barrels and conveyed with the records by a train of carts. The train was well guarded, and the conveyance was made without difficulty in England. When money had to be sent to the King in France, as on January 3rd last year, when the thousand marks were sent by special messengers from Dorchester to Dartmouth for conveyance into Poictou as previously noted, more caution and secrecy had to be exercised. Thus in a Close letter of 9 John, July 25th, the Sheriff of Devon is commanded to find "a safe ship for conveying the King's messengers with his treasure to Poictou, and to take care that the ship is the first to go, lest rumours of its sailing should get abroad before it arrives at Poictou."

On May 25th the King ordered the Bailiff of Bere to provide a handsome cross for placing in our chapel of Bere. An entry in the Pipe Roll gives the cost of the handsome cross as 5s.

It has been observed before that Wiltshire was famed for its weaving. On December 16th the Sheriff of Wiltshire was commanded to procure 500 clls of linen for making "nappas" (table napkins?), by Christmas Day. These table napkins were used at Winchester, where the King kept Christmas Day this year, and on April 13th the King ordered them to be sent to Norwich in time for Easter.

The Earl of Mar to have seizin of the lands in Dorset which were John Maltraver's. (Dec. 26th.)

William de Oysellar to be provided with necessities whilst in Dorset with 28 of the King's hounds and six harriers. (Dec. 26th.)

£50 to be paid to Stephen de Turnham and J. de Veteri Ponte for the works at Corfe. (Jan. 12th.)

Hugh de Neville to be paid what he has laid out in building the King's houses at Cranbourn. (Jan. 20th.)

Necessaries to be provided for one horse and groom at Dorchester. (Jan. 25.)

Twenty shillings to be paid annually to "our" chaplain at Cranbourn, which the monks of Ellingham were accustomed to pay to a Norman abbey which is in the King's hands. (Jan. 25th.)

The Sheriff of Dorset to be repaid what he had reasonably laid out for the servants who guarded the King's effects (?) (*warnistura*) which were sent into Picardy. (Jan. 25th.)

Twenty marks paid to the King in his Chamber at Sturminster for wines sold, to be reckoned to John La Warr, of Bristol, and his associates, who were the custodians of the King's wines. (Feb. 8th.)

How true historically the old nursery rhyme is which represents the King as "in his Chamber counting out his money" has been remarked by others. We have here one of the many instances of it to be found in the Rolls. Probably the second half of the rhyme, "the Queen was in her parlour eating bread and honey," is not less true to fact. The Queen would necessarily spend much time in her parlour, superintending her maids engaged in embroidery and needlework, and bread and honey is a very probable form of refreshment. Though many lists of food of all kinds ordered for the King's feasts are to be found in the records I have not yet found butter mentioned in any of them.

The Sheriff to pay 11 decorators or illuminators and three masons (*xi minatoribus et tribus mazunis*) (1) employed upon "our castle of Corfe" 3d. a day, except Osbert Pinel, the master mason, who was to have 6d. a day. (Feb. 19.)

Wine to be sent from Southampton; one barrel each to Cranbourn, Bere, Powerstock, and Gillingham; two barrels to Dorchester. (Feb. 18th.)

The Bishop of Salisbury to have seizin of certain lands in "Esse, Woth et in Wulveton. Would Wulveton in Dorset be Wolverton near Dorchester? (March 23rd.)

The King received in his chamber by the hands of Robert Peverell £130 of the issues of the lands of Earl Pertieen, which the said Robert held as Custos at Powerstock. (March 31st.)

(1) In the Pipe Roll, John 9, the entry is "*xi miniatorum et trium cenitorum*."

Droyo de Diepe to be paid ten marks for making petronels and mangonels. (May 19th.)

The King when at Bere on December 13th was making provision for Christmas Day festivities. This was his order to the Sheriff of Southampton on that day : to procure and to send Winchester (where the King was to keep Christmas) fifteen hundred fowls, five thousand eggs, twenty oxen, one hundred pigs, and one hundred sheep—truly a royal banquet. (C.R., Dec. 13th.) The festivals of Christmas, Easter, and Whitsuntide were observed by the Norman kings with almost barbaric splendour ; on those feasts the King wore his crown, and his court was attended by the principal nobles, the Archbishops and Bishops, and the most notable personages in the kingdom.

THE PATENT ROLLS

of this year contain but few entries relating directly and specially to Dorset.

The King granted a license to the Lord Bishop of Chichester to convey marble by sea from Purbeck to Chichester for repairing the Cathedral there. (May 24th.)

JOHN 9.

Eleven decorators, if "miniatorum" is to be so translated, and three masons were employed in the King's service in Dorset. They were paid 3d. a day, except the master decorator, who received 6d.

The cost of keeping the King's horses at Dorchester was 65s. 3d. and the repair of the King's houses there 73s. Two sums of £25 each were spent upon the King's house at Powerstock, and £4 7s. 7d. upon the castle of Sherborne.

The value of a palfrey is given incidentally amongst the "ammereiamenta," where it is stated casually that Robert de Mandeville paid five marks in lieu of a palfrey, which gives the value of a palfrey as before stated at £3 6s. 8d. in the money of the day.

From

THE CLOSE ROLLS

we learn what were the offerings of a Norman King on great festivals. These were as follows in John's reign :—On Christmas Day, two marks of gold ; on the festival of the Circumcision, one ounce ; Epiphany, one mark ; Annunciation, one ounce ; Palm Sunday, one ounce ; Easter Day, one mark ; Ascension Day, one ounce ; and Whit Sunday, one mark. Nine marks of silver (*i.e.*, £6) to be reckoned for each mark of gold. (June 11th.)

Wine to be sent from Southampton as follows :—Two tuns to Bere, three tuns to Gillingham, two to Sherborne, one each to Dorchester and Poorstock. (July 6th.)

We have seen in a close letter of the last year what was the provision made by the King when at Bere for the Christmas which he was about to keep at Winchester. The C.R. (July 14th) of this year contain the order for payment of groceries and other supplies for the same feast, the list of which includes 1,000 tapers, wood, hay, etc., the spices used for flavouring the various dishes and their cost as follows :—30lb. of cummin, 6s. 3d. ; 2lb. of saffron, 24s. ; $\frac{1}{2}$ lb. of gall nuts, 2s. 6d. ; 3lb. of cinnamon, 7s. d. ; 3lb. juniper, 7s. 6d. ; 1lb. mace, 10s. Six pans were also purchased for 42s. and two brazen measures, two tripods and gridirons for 24s. ; 24 towels, 24s. ; 52 ells of linen, 26s. ; four knives, 4s. ; and one "mappa," 18s. The mappa was a canopy supported by four poles and carried over the priest at festivals, and also over the King on great occasions. Saddles, carts, and harness (£5), bits, panniers, &c., are also included in the list, as well as 33 ells of scarlet cloth, 4 hoods de byss', and 2 coverlets, which were supplied by Randolf Parmentarius. (July 14th.)

Patent letters of December 3rd and December 9th will help us to realise the appearance presented by the King on the three great state occasions when he wore the crown. There was more than one set of regal ornaments. The regalia were committed to trustworthy persons, abbots, knights, custodians of the King's castles, and others in different parts of the kingdom,

and the King seems to have sent for the regalia nearest to the place where he intended to keep the festival. This year he was in Wiltshire in the early part of December, and on December 3rd ordered Rob de Ropell in Wiltshire to bring the crown and regalia which were in his custody, and they were brought to the King at Clarendon on December 9th. This was the list :—The great crown which came from Alemannia, one tunic of purple and sandals of the same cloth, and belt set with precious stones, one pair of shoes and one pair of gauntlets, a dalmatic of dark purple and a regal pallium of purple with clasp and brooch of gold, a silken cloth for wearing above the King crowned (*i.e.*, a canopy), a great sceptre, a golden staff with a dove on the top, two standards and golden spurs, a cup of gold weighing 8 marks and 2oz, and a cross of gold. These were probably carried with the King's treasure and in his train from thence to Brockenhurst, Egbury, Winchester, Freemantle, and Oldham to Windsor, where the King kept Christmas.

There is a curious order, dated July 22nd, to the Constable of Winchester gaol, to allow Jordan de Bianney Knight to go out of prison twice a day or oftener to practice fencing, Oliver de Vallibus to be imprisoned each time in his stead and until his return; this was doubtless as a preparation for trial by duel.

Certain prisoners to be transferred from Winchester gaol to Corfe Castle. (Aug. 28th.)

The floors of the King's houses were strewn with rushes, or other litter, or they were sanded. (Oct. 30th.)

The King's harriers were sent to Cranbourn. (Nov. 2nd.)

Five barrels of wine wrecked at Wareham to be seized for the King. (Nov. 27th.)

A close letter (December 3rd) shows how counties were committed to a sheriff, and the form of order to the old sheriff to render account at the exchequer of all arrears. The counties of Somerset and Dorset were transferred from William de Montacute to William Brewere.

A prisoner, Odo de Norwich, committed to Corfe. (Feb. 4th.)

The Abbot of Bindon to receive security from Master Simon de Langeton. (Feb. 14th.)

Order to the Sheriff of Dorset to repair Sherborne Castle. (Feb. 18th.)

Order to the Sheriff to have a kitchen built "for our use" at Bere. (March 3rd.) The kitchen built at Marlborough and Ludgershall by the King's order contained fireplaces sufficiently large to cook two or three oxen, and the Bere kitchen was no doubt equally large, for, as we have seen, the King's banquets were on a large scale.

Three barrels of wine of Angers to be sent to Powerstock. (March 21st.)

William de Montacute to be repaid what he has laid out in repairing the houses of our castle of Sherborne, and in payment of the expenses of the Earl of Gloucester whilst he stayed at Sherborne. (April 15th.)

PATENT ROLLS.

John de Fissa, chaplain, has letters addressed to the Bishop of Salisbury of presentation to the Church of Up Wimborne in the gift of the King. (June 4th.)

The Castle of Corfe committed to the charge of John de Bassingeburn. (July 8th.)

License to the messengers canons of the house of S. Thomas of Acre, to collect alms for the redemption of captives in the Holy Land. (Oct. 13th.)

The Castle of Sherborne, with its pertinences, to be delivered to W. Brewere as custodian. (Dec. 3rd.)

Writs sent into Dorset, as well as into other counties on the sea coast and to the Cinque Ports, commanding all ships of the several ports to return to England within a week of Easter and to be ready for the King's service. (March 17th.) The best and strongest men of these ports to be selected and employed at the King's cost for manning the vessels. (Same date.)



Antiquities of Dorchester.

By H. J. MOULE, M.A.

I speak on this subject may seem to many needless, even worse than needless. Why add anything at this time of day to what professed antiquaries have written from Camden downwards? Is not the subject worn utterly threadbare? Threadbare enough, in truth, as far as utterance of opinion—of conjecture—goes. But that is as foreign to my object as can possibly be. All I venture to lay before the members of the Dorset Field Club is the question whether up to this time there has been research enough—spade work enough—bestowed on this place, viewed as an ancient fortress town. Then as a rider to that question I would offer a suggestion as to what in my humble opinion might be aimed at. Stukeley will be quoted in this paper. It may save time to say now, once for all, that as far as my judgment goes it is entirely in accord with those who put his authority very low indeed when he makes guesses and delivers learned opinions. Still, his notice of Dorset and Dorchester is so interesting and suggestive that it cannot be ignored.

In now proceeding to speak of Dorchester antiquities I include several which, although not in the town, are within or close to the borough bounds.

I. Maumbury Rings. Stukeley outdoes himself, it seems to me, on this subject, in shaky opinions. Still, several points brought forward by him have never been actually settled by research, as far as I know. Of these points I would name three. Firstly, his idea, at least in p. 167, seems to be that all below the terrace, which is roughly half way up each bank, was the podium; not a place for spectators. Secondly, he says "The cave I suppose to have been at the upper end," *i.e.*, the south end. "On the outside is a large round tumour, regular in figure. I could wish that a careful person had liberty of digging into it." Then he speaks of the arena thus, "The descent from the entrance is very great, and you go down as into a pit." Now, as far as I know, research is needed for the clearing up of questions arising from all these points. The chief work desirable with this view would probably be as follows:— Firstly, a careful section might be made through the bank at the south side. This digging should include the "tumour" spoken of by Stukeley, and which to my mind may perhaps be nothing more than the Parliamentary "platform" or battery. Then a section into one of the side banks would probably settle about the lower part being a podium or not; as also concerning Stukeley's conjecture that the banks were, at least partly, built of squared chalk, not merely piled up. Lastly, a section across the arena, or part of it, might reveal its former level.

II. Poundbury. About this Stukeley is simply no use at all. For he did not know, and for nearly a hundred years after his time no one knew, the real nature of that entrenchment. It was only when the railway was made that Poundbury was found to be a very elaborate fortification. It now has only a vallum and slight indications of another. The cutting giving access to the tunnel showed that on that south-eastern side there were four fossæ. Nor does Stukeley even speak of the very noteworthy approach to the north side of Poundbury by a ledge or terrace road. Now in thinking that more work is wanted at Poundbury I am very far indeed from underrating that already done by Mr. Cunningham, especially in the fossa on the west side. It is invaluable in itself

and also as being, as far as I know, the sole attempt of the sort made at this interesting stronghold. But I venture to think that it should be carried much further. Considering that the position of Poundbury Camp is weaker on its west and south-west sides than on that towards the east it is reasonable to suppose that those were even more artificially strengthened than this last. Sections to ascertain this should, therefore, be made on the west and south-west. Mr. Cunningham has already found in the bottom of the original western fossa Celtic pot sherds enough to convince him that Poundbury was made by Durotrigian, not Roman or Danish hands. But this invaluable source of evidence should be most carefully searched for in any new digging. Again, I may be wrong, but my belief is that the epoch and even nature of the Poundbury * barrow has never been thoroughly settled; nor its unusual position accounted for. Further, it is only fear of running on to too great length and of straying too far beyond borough bounds that causes me to omit anything more than mere mention of the excessively interesting terrace road and cattle pound connected with Poundbury.

III. The ancient roadways from Dorchester itself call for research. As far as I can make out we (excepting, I believe, Mr. Cunningham) do not know with any certainty the exact spot where the *Via Iceniana* left Dorchester on the east side, nor its route across the present meadows. On one hand the late Mr. Warne saw great reason to believe that there was a Roman ford 100 yards or more north of Gray's Bridge. And that a Roman track was thereabouts may be incidentally rendered likely by a place name. In the Duchy of Cornwall map a meadow lying between the supposed ford and the town, north of the present entrance, however, is marked † Old Road Mead. On the other hand a Roman road was struck near Fordington Foundry a year or two ago. It was seen by various persons, including the Rev. W. M. Barnes and myself.

* As a mere guess the idea that this mound may be, not a barrow, but the "caput" of the Hundred of St. George, is suggested.

† This road seems to be shown in Hutchins' View of Dorchester and Fordington.

To us it seemed to point to Fordington Hill, and to suggest that possibly the, or at least a, Roman eastern exit from Dorchester was that in use down to nearly the middle of last century. This was through the lower part of Fordington, Holloway Row, &c., crossing a ford just below Fordington Mill, then over Stocken Bridge a few hundred yards below Gray's Bridge, and so by a doubtful track over the meadow to Stinsford Hill. Again there seems to be no approach to knowledge of the line of the Roman road which appears to have passed near the sites of Wareham House and Max Gate, and which probably left Dorchester by the Gallows Hill Gate. This leads me to say, in a word, that there are Celtic road lines also which are but little known. One is at the spot just named, Wareham House. Another has been repeatedly struck between the town and Maumbury Rings, under the east bank of which it seems to me to go.

IV. I would lastly touch on the antiquities of Dorchester itself. And here, too, in my humble thinking there remains much to be found out about the lines of road, just as outside the town. Deep under present roadways lies the grouted Roman track in several places. For instance, it appeared to be struck in South Street while this paper was in hand. Under the present surface it is found from time to time, but it is not always sure that the old lines coincide with those of this day. For example, Mr. Hansford has told me that he saw what was taken to be a Roman road running under the bank which formerly adjoined South Walk. And this road pointed, diagonally to present lines, towards the middle of the town. Again in High Street, close to Trinity Church, I have seen with much surprise a foundation crossing the street diagonally. This seemed to me to prove a former arrangement of buildings and of the roadway there quite different in direction to what exists now. Yet the present street there is generally accepted as the line of the *Via Iceniana*. Altogether our knowledge of Durnovarian street lines seems to leave much to be desired. Research by digging is in this matter impossible. But there are one or more men who have done much work in connection with sewers. I would suggest that

the bits of information which I know they possess might be gathered up and possibly pieced together with some good result.

But I now close with my chief point connected with Durnovarian antiquities. It is the urgent need for research into the real construction of the Roman defences of Dorchester. What did they consist of? Well, we know that there was a very wide fossa. Remains of its contour are visible on the south and west sides of the town. Two portions of its counterscarp were well shown in the foundation digging of Mr. Pope's house and stables. But what of the wall? First, how far did it extend? Stukeley says "the foundations appear quite round the town." On the other hand his plan and Speed's give the wall as extending only along the line of the Walks, together with the space from the end of Colliton Walk to Friary Lane. And Mr. Cunningham, if I understand him rightly, is of opinion that there was no Roman wall from Colliton Walk to the foot of High Street, the lake or fen being there defence enough. So the extent of the wall is a moot point. But yet more so is its construction. On one hand Stukeley's description of what he saw seems to mean a single stone wall, with which the small crumbling relic appears to agree. And Mr. Cunningham's study of the question leads him to this conclusion. On the other hand the Rev. W. M. Barnes and my humble self find it very hard to read "*Vegetius de re militari*," on town fortifications, and accept the single wall idea. He speaks entirely as a matter of course of a triple rampart. There is a vallum or agger of soil from the fossa, a retaining wall in front and one at the back. Such was the most ancient wall of Rome, such was the wall of Pompeii. It is difficult to believe that, with the huge mass of chalk from the fossa demanding a resting place, the Romans did not utilize it for an agger. But this view is not put forward dogmatically in the slightest degree. All that is suggested is that a narrow but deep section from (say) Sir Robert Edgecumbe's west fence, through the West Walk between two pairs of trees, and right through what was Mr. Harris's nursery ground, would probably settle the question, and would give also a complete contour of the fossa.

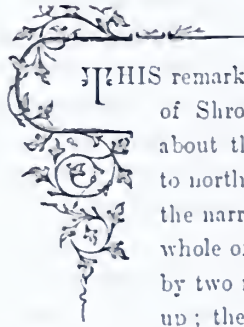
This closes the hints which I venture to lay before the club, not that they exhaust the subject by any manner or means. Research is needed elsewhere in Dorchester, for instance in Colliton Park. And if we were to bring our thoughts down from Durnovaria to Dorchester of later times we should never have done. Everything old and accustomed, everything interesting, is being improved away—restored away—here as everywhere. Often, too, it is unrecorded. I could tell of a lovely roomful of oak panelling being clean swept off the walls without the owner knowing of its existence. How many of us, again, have seen the noble oak room at the Antelope? But it is of Durnovaria, not Dorchester, that I was to speak. And I thank you for this opportunity of getting off my mind the feeling that in some way or another, by someone or another, the use by a “careful person” (as Stukeley says) of spade and pickaxe among the old sites here should be pressed on attention as badly needed. So and no other way could we perhaps get to know, to know, not guess, where exactly lay the streets, what exactly was the line of all the outside roads, what exactly was the make and look of the walls. If the flints of those and the ashlar of these could speak what a tale it would be—what histories “in stones.” Along the roadways, through the wall gates, has passed the Eagle before Vespasian, and the Dragon (who knows?) before Arthur, and the Raven before Swegen. And there was rattle of Norman hauberk and clash of Plantagenet plate harness. And so on, and so on down to the ironside tramp of Despot Oliver himself. Surely it is worth while to learn a little sure lore about a town that such a long drawn “tiale’s a twold o’.”





Gambledon Hill, Dorset.

By E. CUNNINGTON, Esq.



THIS remarkable and very large camp is in the parishes of Shroton, Childe Okeford, and Hanford. It is about three quarters of a mile long from south-east to north-west ; its breadth varies very considerably, the narrowest part dividing it into two camps. The whole of this large, irregularly-shaped hill is fortified by two ramparts, one near the base, the other higher up ; then, again, by a rampart all round the summit, and this made in the usual irregular method of the early Celts by material put forward from shallow pits all the way round. These shallow pits are readily seen, although now overgrown with grass. On the south-east side, where the high ground to the east is level with the camp, a fine rampart is made 29 feet high of sufficient length to protect the camp at this part. This rampart is dug out here very deeply and put forward, leaving large apparent depressions. Then again, in the east, are four or five other outside ramparts with corresponding ditches. It is an immense work, and must have cost enormous time and labour ; the pattern they evidently copied was Badbury Rings near Winchester, and in spite of all the local difficulties they have faithfully carried out their gigantic task. The two camps were originally connected by a high narrow ridge ; this has been much reduced in height by levelling on both sides, so as to make a much broader connecting link between ; whilst either

side of the remaining ridge could be used as an exit from the camp, so as to conceal any movement from an enemy. I find from excavations made on this part, October 18th and 19th, 1894, that the Romans occupied this ground occasionally, as doubtless a fine post for observation. I found a few fragments of a large imported quern, Roman black pottery, an iron spearhead and falx or knife with two rivets on it for fastening it to its handle. Also Roman pottery and pebbles brought there for Roman sling-stones; of these Mr. Durden's catalogue says: "A large number were found." The catalogue also mentions sixteen Roman articles, including iron saws, bronze fibulæ, knives, armillæ, several coins of Constantine, &c., &c.

Of Celtic remains I found mostly badly-burnt soft pottery and fragments of small querns, made of the greensand that appears near the base of the hill. Mr. Durden mentions also two bronze celts. This camp, like its prototype, Badbury Rings, and other cone-shaped camps, speaks of an early race who kept neither sheep nor cattle, and required no water supply, so essential to their long subsequent successors, the Durotriges.

HODD HILL.

Our county of Dorset very closely represents the area taken up by the Durotriges—the dwellers by the water—and their camps define to a certain extent the boundaries. Take a line from Poundbury, Wareham, and Dudsbury, we have the southern boundary. The country stretching to the sea, about eight miles broad, was occupied by the Belgæ. This is proved by the stone implements found on this area by myself; they are foreign stones and of foreign make; I get exactly the same in Brittany and Normandy. From Dudsbury, which is five miles from Wimborne, the line takes a north-eastern direction by Spettisbury to Hodd Hill. All these five camps have the same characteristics, all being defended on the water-side by the same simple plan—viz., escarped down to the water; no further defence being required on that side. As previously observed at Poundbury, these camps were

not living places, but places of refuge and defence in time of war or danger.

Whilst Hodd Hill camp was under cultivation about 40 years ago, I expect most of the late Mr. Durden's antiquities were found. Judging from his catalogue, the remains of the first possessors consist of three polished celts, one of them of red sandstone, another of green-stone, half of a hammer-head of red sandstone with drilled hole for handle, two flint arrow-heads with serrated edges, three bronze rings, seven iron swords varying in length from 20 to 25 inches. These swords are similar to the eighteen found near Milborne St. Andrew in 1881; some of them are in the County Museum. They were used at the end of poles. Mr. Roach Smith calls them imperfect swords, made of native iron, the old English glaive.

About one half of Hodd Hill has been partitioned off by fresh ramparts by the Romans, who appear, from their remains found, to have occupied it for considerable periods. From the same catalogue we find them to be fibulæ, knives, various kinds of spears, bronze articles, such as rings, tweezers, armillæ, &c., 17 pieces of very rare veined coloured glass, Samian ware with makers' names, &c., &c., now all in the British Museum.

I must not conclude without acknowledging very best thanks to the Hon. Claude Portman for permission given to make the excavations. My grateful thanks are also due to Mr. and Mrs. Forrester for kind and efficient assistance.





A Legend of Milton.

By F. FANE, Esq.



I MUST apologise very humbly for bringing before a learned body such as this, the very trivial and frivolous matter which I propose to relate to-day.

My excuse must be that anything locally connected with the County of Dorset must be of interest to the members of our Club. In one of Lever's Irish Novels an account is given of a club which formerly existed in Dublin, the members of which were bound under their bond of fraternity, to produce any good story or matter, which might come to their knowledge, for the general amusement, even though it should affect their best friend, their cousins, or their aunts, from whom they expected a legacy. Something similar, I think, might be a rule of a society like ours, and we should all be bound, to relate any fact, which might come to our knowledge, in any way relating to the county, or which might be likely to be of interest to *any* member of this Field Club.

I have, therefore, received our President's permission, to relate a curious experience of my own, some years ago, at Milton Abbey. One difficulty connected with the subject, however, is how to class my story, so as to bring it under any particular subject that may be legitimately brought under the notice of such a mass of

learning as I see here, not being connected with any of the "ologies," archæology, entomology, conchology, geology, or any branch of natural history.

Yes, by the bye, as my story deals strictly with matters beneath the earth, so I hope, when our learned President hears my little tale, he will give me leave, to class it under the department of Geology, of which he is such a past-master.

In October, 1873, I was staying at Milton Abbey, shooting with Mr. Hambro, at least I fancy that that was the date, or nearly so. At that time, some repairs were being done, in the north transept of the Abbey Church, and while waiting about one morning, for breakfast, I strolled into the Abbey, and entered into conversation with the clerk of the works, superintending the repairs. He told me, that there had always existed a tradition, in the parish of Milton, that nearly or quite a hundred years previously, when, as you are aware, the village stood on the ground adjacent to the Abbey, where the flower garden now is, and the Abbey was the parish church, a bogus funeral had taken place there. One of the young Damers, a son of the Lord Milton of the time, had been extravagant, and his presence had been much required by the bailiffs, and he had escaped a search made for him by them at Milton on various occasions. One day, a message arrived at Milton, that the young man had died on the Continent, and was to be brought over for burial there.

This was accordingly done, and a more than usual display was made at the funeral, even exceeding the displays common at the time. He was buried in the vaults of Lord Milton, below the north transept of the Abbey Church, and immediately beneath that lovely monument to Lord and Lady Milton, which is probably well known to most of us here.

However, the country people were not without suspicions, would not, and did not, believe that young Damer was really dead, and buried, and it was believed, that on many occasions subsequently, he was seen in the flesh, about his paternal home. At any rate, his apparent death and burial appear to have satisfied his anxious

creditors, that nothing farther was to be expected from him, in liquidation of his debts.

The people of Milton said nothing, but thought a good deal no doubt.

Standing in conversation with the clerk of the works, close by the monument to Lord Milton, which is in the centre of the transept, he told me, that for the purpose of underpinning, and securing the safety of the buttress, at the north corner, it had been necessary to open and examine the flooring of the transept, and in so doing, they had come upon the entrance to the Milton vaults, and that, if I would descend the stairway, near the monument, I should see in the vaults below, what would convince me of the truth of the parish legend, regarding the nominal burial of young Damer. Descending the stairs I found, as well as I can recollect, three or, at any rate, two considerable open vaults, with numerous coffins, upon tressels, upon each side of a central passage, some covered with tattered velvet, and pasteboard property coronets, lying on their tops—a very singular sight.

In the farthest vault, was a coffin, with the brass name plate, which had been attached to the outer case, still lying on the minor leaden one, bearing an inscription, detailing the name of a Damer, who appeared to have died, at little more than 20 years of age, somewhere about 1770.

"Now, sir," said the clerk of the works, "try to lift that coffin as it lies on the tressels." This I found impossible, owing to its extraordinary weight. "Now, sir, try to lift this one," pointing to one close by. Up it came without the slightest exertion. "There, sir, this one contains a body gone to dust. The other one is full of stones, as it was supposed by the old villagers would be the case, if any opportunity ever again occurred, for investigation."

A similar story, is related at Scotney, in Sussex, regarding one of the Darell family, who is said to have attended his own funeral in disguise. In this case the coffin was found full of stones also.

As in all human probability, these Milton vaults will never again be opened, this story, which has so long obtained at Milton, can

never again receive refutation, or verification, at the hands of any one.

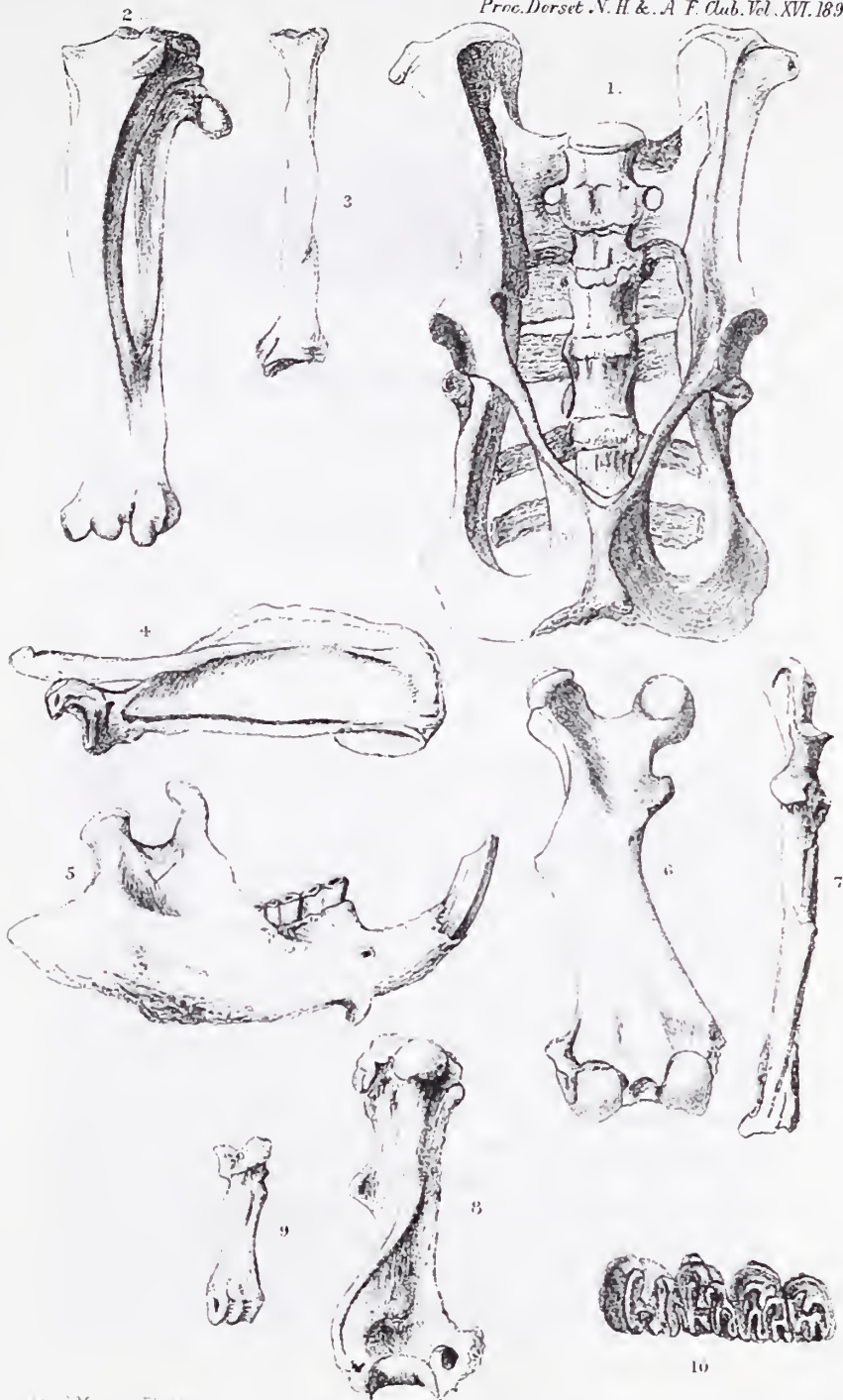
While dealing with these, shall I call them, underground, if not geological, subjects, I should like to mention a matter I saw in Scotland last year as of interest, though unconnected with this county.

In an old churchyard, behind the lodge at Aberarder, in Inverness, I saw scattered about among the old gravestones and nettles (the former, chiefly in memory of Roman Catholic dead) some very heavy broken gratings of old iron, the vertical bars of which were pierced with rivet holes, to which many of the bolts were still attached. These gratings, I was informed, about seven feet long, all bars of inch iron, had been placed over coffins buried about sixty years ago during the scare caused by the "Resurrection" doings of Burke, Hare, &c., who made a trade of exhuming bodies for sale to the surgeons. It was said at the time, that they did not hesitate, at murder direct, if other "subjects" failed. These gratings, had been securely bolted down, to heavy slabs of stone below the coffins, to baffle the diggers, and have been cast out of the earth, when graves have been dug, in more modern times.



EXPLANATION OF PLATE.

1. Pelvic-girdle.
2. Tibia.
3. Radius.
4. Scapula.
5. Lower jaw, right (fully furnished, 1 incisor,
2 molars).
6. Femur.
7. Ulna.
8. Humerus.
9. Phalange.
10. Molars



Facel Mander, F.R.S.E., sc.

BEAVER REMAINS FROM NEAR KEYNESTON MILLS

Wintern Bros. lit.



On the Castoridæ, with special reference
to *Castor fiber*,

WHOSE SUBFOSSILED REMAINS WERE FOUND IN THE VALLEY OF
THE STOUR NEAR KEYNSTON MILL.

By J. C. MANSEL-PLEYDELL, Esq.



THE family Castoridæ, Order Rodentia, is represented by the European Beaver, *Castor fiber*. It is found fossil in England in the Red Crag Nodule Bed, passes through the Forest Bed to the Pleistocene, and is living at the present day. The gigantic *Trogontherium curieri*, an allied genus, occurs from the Pliocene on the borders of the Sea of Azov, Ostend, Belgium, in the Red Crag Nodule Bed and the Forest Bed. It probably succumbed to the rigour of the climate which succeeded the nodule-bed age or from some other cause, whilst its more hardy congener, *Castor fiber*, was able to hold its own through those trying periods. This very large beaver, now extinct, is found fossil in the Pliocene and Pleistocene beds of Europe and in the Pliocene beds of N. America. It is distinguished from *Castor fiber* by the enamel folds of the molars, as well as by its size, being one-fourth larger. A smaller species, *T. minus*, occurs in the Red Crag Nodule Bed at Felixstowe, Suffolk, at a lower horizon than that of

T. curieri. *Castor veterior*, Lankester, also occurs in the Red Crag Nodule Bed of Suffolk ; it has not been met with elsewhere, and is restricted to that geological horizon. The European Beaver, *Castor fiber*, was at one time an inhabitant of the British Isles. It is now found but rarely, on the banks of the Rhone, the Weser, and Elbe, the Garonne, the Danube, the Rhine, and the Vistula, and in the streams of the Ural Mountains. They are not so constructive in their dams and habitations as the American species *Castor canadensis*, which scarcely differs from *Castor fiber*, except it is a little larger. The distribution of *Castor canadensis* once extended from the Arctic Circle to the Tropic of Cancer ; now it is on the verge of extinction. The European Beaver extends back to the Pliocene of Norfolk and is associated with the *Trogontherium* in the Forest Bed of Cromer. Another extinct species, *Protocastor*, is an allied genus. A smaller form, *Chalicomys* (*Steneofiber*) occurs in the Middle and Lower Miocene beds of Europe and of the United States, and is distinguished from all existing rodents by the perforated humerus, and the molars having more distinct roots. It appears to be scarcely generically distinct from *Castor fiber*. A large beaver-like rodent, *Castoroides*, with the dimensions of a bear, occurs in the Pleistocene beds of the United States, whose cranial characters are similar to those of Castoridæ. This animal, which completes the list of the beaver tribe, attained a length of five feet.

Beavers were apparently abundant in Europe at one time ; a few colonies still remain in the remote wilds of Scandinavia and Russia, and skins are sent at the present day from the Obi to the fur markets. In a German charter, dated 1103, the right of hunting beavers was conferred along with other " huntings and fishings ;" and by a Bull of Lucius III., 1182, property in the beavers which were taken within its boundaries was bestowed on a monastery. There are records of beaver-remains in Poland in the 16th century.

A Prussian edict, dated July 30th, 1764, refers to the beaver on the Elbe ; another edict, dated Berlin, March 24th, 1725, required the protection of the beaver under the penalty of a fine of £40.

Pennant, 1781, quoting Buffon, says the beaver inhabits Europe from Lapland to Languedoc. Two old and six young were taken in 1742 at Gorniehem, in Holland; one in 1757 in the Yessel in Guelderland; and one in 1772 in the Maas, near the Village Hedel. The last weighed 40 pounds. Pennant adds "It abounds in the affluents of the Obi in Asiatic Russia, and in the chain of mountains which border on Siberia, but not in Kamtschatka owing to the absence of woods."

In an Act, dated 1424, c. 22, "On the Custom of Furringes," mertrieks (martins), fowmartes (polecats), otters, and tods (foxes) are specified, but not a word about the beaver; had they existed then they would have been mentioned, being more valuable than the above-mentioned not only for the fur, but also for the *castorium*. It might, however, have been so scarce at the beginning of the 15th century as not to be worth mentioning. It has certainly lived in the higher watersheds of Scotland and Wales during historic times. The earliest notice of it in our national records is in a code of Welsh laws, A.D. 940, reserving the value of the skins of beavers, martens, and ermines for the King. The rarity of the beaver even at that time is shown by its relative value compared with the martens, which was 120 pence for the one and 24 pence for the other, and 8d. for a wolf or for an otter.

Two hundred and fifty years afterwards Giraldus in his account of a journey through Wales in 1188 says "The beaver is found in the river Teive in Cardiganshire," and gives an account of its habits, apparently derived in part from his own observation. We are told in a subsequent record that "The Teivi" claims the beaver to be peculiarly its own. On another occasion Giraldus says the beaver is said to be found in the Scotch rivers, but "very scarce." Dr. Walker, Professor of Natural History, Edinburgh, in his lectures used to mention that the Scotch Highlands still retain by tradition a peculiar name for the beaver, *Losleathan*, derived from *los*, tail, or end of a thing, and *leathan*, broad. All British records subsequent to 1524 go to show that its extinction was imminent. Hector Boece (or Boethius) writing in 1526, enumerates the *Fibri* or

beavers, with perfect confidence amongst the ferre nature of Loch Ness, whose fur was in request for exportation towards the end of the 15th century.

Mr. Harting, in his "Extinct Animals within Historic Times," from which the above is an extract, says that the historian, &c., Dr. R. Browne, on p. 41, thought that Boethius and historians of that age, influenced by a little natural pride of country, and wrongly considered the beaver to be an inhabitant of Loch Ness in the 15th century, as there is no mention of it in an Act of Parliament dated June, 1424, though martens, polecats, otters, and foxes are specified. It is possible that beavers were then so scarce as to be scarcely worth mentioning. The last home of the American beaver may now be considered to be along the watershed between Hudson Bay and the St. Lawrence and the range of the Rocky Mountains. The American beavers leave their embankments when the ice breaks up and rove about until the fall of the leaf, when they return again to their old habitations and lay in their winter stock of wood. They seldom begin to repair their huts until the frost sets in, and finish the outer coating when the cold becomes severe. The earliest notice of the fossil-remains in this country is by Dr. Collett, Bishop of Ossory, in the Phil. Transl., 1757, from a peat-pit near Newbury, Berkshire, which yielded jaws and teeth of beaver, associated with wild boar, roe deer, and wolf. In 1728 Dr. Farquharson found the head and femur of a beaver in a marl-pit at Kinloch, Perthshire; on the margin of Loch Marlea, under a covering of peat-moss five or six feet thick, and in 1848 its remains were found in Berwickshire, and in the same year near Chatteris.

In 1874 Lord Bute turned out four beavers, *Castor canadensis*, which he procured from Canada and enclosed them in four acres of wood, through which a stream flowed. This first attempt proving unsuccessful Lord Bute procured seven more, which at once commenced the construction of an embankment across the stream of the enclosure, and of a hut composed of trees, branches, grass, weeds, and a few stones for its stability.

Lord Bute's gamekeeper, Mr. J. N. Blake, in his account "How the Marquis of Bute's Beavers have succeeded in the Isle of Bute," *Journal of Forestry, February, 1888*, says that at that date the embankment had reached in the course of 13 years the dimensions of 70 feet in length, an average of eight feet in breadth at the top, 20 feet at the base at its greatest depth, and was arched outwards towards the stream; that the beavers carry on the building with the aid of their mouths and fore-feet only with which they stow away the mud among the sticks. After appropriating the bark for food they place the sticks on end, holding them with their fore-feet, and then with their teeth pare them down into fine shavings, with which they line their beds. Their favourite food is the bark of the willow and poplar. In the summer their food is bracken, grass and young shoots; in the autumn they feed upon the roots which they grub up, occasionally cutting down a tree, upon the bark of which they feed. The tree-felling is done at night. In the 13 years they had cut down 187 trees from five feet in circumference; they were all forest trees. Before cutting down a tree the beaver marks it all round at the height at which it intends it to be cut and begins at the opposite side the tree is to fall, so that the top may be in the direction of the stream. When cutting the trees it uses its teeth on the same principle as the woodman uses his axe, keeping plenty of open space, so that it may be able to cut farther in than the centre on one side before beginning the other. Towards the end of the autumn it commences to cut down trees for winter food, and when done strips off the branches, cutting them in lengths, and then drags them away and stores them in different places near its home; it eats the bark of the trees which are left and which it is unable to carry away.

European beavers, through a long period of unfavourable circumstances, partly perhaps through diminished numbers, have lost many of their characteristic habits. As the construction of their dams and huts requires the united efforts of the whole colony, it cannot be accomplished by a single family only.

The beaver produces its young in April and May, which are supposed by some naturalists to be born blind, but of this there is some uncertainty. At two months old they are able to take care of themselves, but they do not reach adult age until they are three years old. Their habits are nocturnal, and the entrance to their holes is said to be made under the surface of the streams. The incisors in each jaw of the beaver have sharp edges, which is maintained throughout life; they have an outer layer of enamel and an inner of cement, which is more quickly worn away, leaving the enamel in sharp ridges. There is a continuous growth at the base of the teeth to replace the constant loss at the cutting end. The enamel is exceedingly hard and used by the North American Indians for polishing their flint instruments; one of these chisels is in the British Museum. There is a cavity in the mouth and cheeks of the living animal, which shows a peculiar provision for the special work of cutting; the space between the incisors and molars being destitute of teeth (canines and premolars) is covered with a dark-coloured thick skin, and the cheeks are furnished with a lining of coarse hair, sufficient to prevent any particle of a chip passing through to the palate, cheek, or tongue.

Like all diving animals and birds, the beaver has a provision for suspended respiration by an enlargement of the inferior *cava cava*, by which a considerable quantity of blood can be temporarily stored. Beavers swim by their hind feet, which are webbed up to the claws. In swimming they keep their fore feet close to the body, which, although also webbed, are only used for building their dams and huts, burrowing, and conveying food to their mouths. The powerful hind feet of the beaver are a perfect model, being specially adapted for their peculiar mode of life. The broad heel-pad and strong claws enable them when on land to stand firmly upright, which is their usual position when at work. The second toe is furnished with a remarkable double claw, which is apparently used for combing the fur. The tail is nearly flat, broad, and straight, covered with strong horny scales. Its primary use seems to be to elevate and depress the head while swimming, and by a diagonal

movement from one side to the other to use it as an oar to assist the animal in diving or turning quickly ; it is capable of a diagonal movement from one side to the other, similar to what in nautical language is termed *seulling*. The muscles of the jaw are more developed than in other rodents for grinding their hard woody fibrous wood. The secretion from the glands of the beaver termed *Castorium* is one of the most distinctive characters of the genus. This waxy substance, the use of which is not at all clear, is contained in two large pockets or sacs situated near the base of the tail, enveloped in muscles fitted for the discharge of any portion of it at will.*

Beaver's remains have been found in the Norwich Crag at Sizewell Gap ; in the Forest Bed at Happisburgh, Barton, Kessingland-Mundesley, West Runton ; in the Pleistocene, Prehistoric, and Historic beds, at Bearwell Fen, Berwick, Chatteris, Ditton Fen ; on the East Coast (dredged), Grays, Ilford, Isleham, Walthamstow, Wateham Fen, Beverley, Renssendale Valley, Cumberland, Kershingham, Kinloch, Linton, Roxburghshire, Kent's Cave (in part), Devonshire. The beaver has been found in the earlier Quaternary and Drift Bed deposits of Kent's Cave (in parts) associated with woolly rhinoceros, wild-boar, horse, red-deer, reindeer, Irish-deer, urus, musk-ox, mammoth, otter, wolf, fox, stoat, cave-lion, wild cat, sword-toothed tiger, spotted hyena. In the later deposits of the age of Wookey Hole, Somerset, the beaver on the Continent

* Castoreum was employed in medicine by Hippocrates as a uterine remedy, and its use has been continued up to now, but latterly to a greatly diminished extent. It used to be furnished to commerce from two sources—viz., Russia and N. America. The former was the more valued, but is not now obtainable. The selling price in December, 1893, reached as high for the best as 140s. per lb. Now the same quality will fetch only 90s. per lb. The quantities imported in these years were about the same—a little over 1,000lb. At a recent sale a parcel of Castoreum from Oregon (N.A.) fetched 72s. per lb. for a small portion of the consignment. Pereira (*Mat. Med.*) states that in 1834 he examined no less than three or four thousand pounds of the article, and gives a very full and minute account of the Beaver and an analysis of the contents of the Castoreum sac.—T. B. GROVES. Jan. 1st, 1895.

(not in England) is associated with sculptured and engraved bones, reindeer, saiga-antelope, glutton, &c.

The remains of the Dorset beaver were found in the Stour Valley a few hundred yards north of Keynston Mill, about 20 feet from the base of a chalk bluff or cliff, at the foot of which the river once flowed when at a higher level. The hole in which the bones lay did not appear to have any communication with the surface above; higher up there were several rabbit holes. Slight as is this evidence I am inclined to think that the animal entered its home under water. With the exception of the skull most of the characteristic bones have been preserved, including the lower jaw, which is fully furnished with teeth—one incisor and four molars (the absence of canines and premolars has been already noticed)—tibia, humerus, ulna, radius, pelvic-girdle, including three lumbar vertebræ, dorsal vertebræ, astragalus, tarsal, and metatarsal bones, and one phalange. The neck of the femur is slender and compressed from before backward in an upward direction. The *trochanter major* is a high three-sided process with a deep fossa; below is a low ridge extending towards the *trochanter minor* which has a considerable development. The *third trochanter* is a ridge continued from the outer part of the base to *trochanter major* which subsides into the plane of the shaft. The distal end of the femur is much expanded, with a deep depression between the condyles.





List of a small Collection of Mollusca from
a Raised Beach on Portland.

By E. R. SYKES, B.A., F.Z.S.



THIS small collection was made from an outcrop on the edge of the cliff on the east coast of Portland about a mile from the Bill, and was probably made from nearly the same spot as the one recorded by the late Mr. Damon.* Prof. Prestwich has recently † elaborately discussed the raised beaches, &c., of the south of England, and it will be sufficient to recall here one of his conclusions—namely, that “the raised beaches of the English and Bristol Channels are on the same geological horizon as the lower old river-drifts of the Thames and Somme valleys and belong to one of the latest phases of the post Glacial, or more properly of the late Glacial epoch.”

I have collated the species as given by Prof. Prestwich, and as I have found them; the list given by Mr. Damon does not appear to contain any species which are not in Prof. Prestwich's list, and I have therefore not given it in detail.

* *Geology of Weymouth, Portland, and Coast of Dorsetshire*, Ed. 2, 1884, pp. 156-7.

† *Quarterly Journal of the Geological Society*, Vol. xlviii. (1888), pp. 263-343.

LIST OF MARINE MOLLUSCA FROM THE RAISED BEACH IN
PORTLAND.

NAME OF SPECIES.	PRESTWICH.	SYKES.
<i>Ecla turricula</i> , Mont.	—	X
„ <i>rufa</i> , Mont.	—	X
<i>Buccinum undatum</i> , Linn.	X	X
<i>Gibbula cineraria</i> , Linn.	X	X
„ <i>umbilicata</i> , Mont.	X	—
<i>Lacuna pallidula</i> , Da Costa *	—	X
„ <i>putcolus</i> , Turt.	X	—
<i>Littorina obtusata</i> , Linn.	X	X
„ <i>rudis</i> , Maton.	X	X
„ <i>littorea</i> , Linn.	X	X
<i>Margarita helicina</i> , Fabr.	X	X
<i>Nassa incrassata</i> , Müll.	X	X
<i>Natica montauti</i> , Forbes	—	X
<i>Ocenebra erinacca</i> , Linn. †	X	—
<i>Patella vulgata</i> , Linn.	X	X
<i>Purpura lapillus</i> , Linn.	X	X
<i>Rissoa parva</i> , Da Costa ‡	X	X
„ <i>albella</i> , Loven. var <i>Sarsii</i> , Loven.	—	X
„ <i>striata</i> , Adams.	X	—
„ <i>subcylindrata</i> , Jeffreys §	X	—
<i>Skenca planorbis</i> , Fabr.	X	—
<i>Tectura virginea</i> , Müll.	X	—
<i>Trophon truncatum</i> , Ström.	—	X
<i>Utriculus truncatulus</i> , Brug.	X	—
<i>Anomia cypripium</i> , Linn.	X	—
<i>Cardium edule</i> , Linn.	—	X
<i>Cyprinum minutum</i> , Fabr.	X	X
<i>Modiolaria marmorata</i> , Forbes	X	—
<i>Mytilus edulis</i> , Linn.	X	X
<i>Ostrea edulis</i> , Linn.	X	—
<i>Pecten varius</i> , Linn.	X	—
<i>Saxicava rugosa</i> , Linn.	X	—
<i>Tellina balthica</i> , Linn.	X	—
	26	19

* I use this name as it is so well known, though Da Costa was hardly a binomial author.

† Given, as is also *Pecten varius*, Linn. on the authority of Mr. A. Bell.

‡ Probably the more correct name would be *R. subluteus*, Adams (1797), or *R. lacteus*, Donovan (1893).

§ A description of this species, supposed to be extinct, may be found in the Quart. Journ. Geol. Soc., Vol. xxxi. (1875), p. 52.

Mr. Damon also records *Rissoa parva* var. *interrupta*, *Saxicava arctica* (= *S. rugosa*, Linn., var), and an unnamed *Trophon*, which is probably *T. truncatum*, Ström. I strongly suspect that *Rissoa subcylindrata*, Jeffreys, will prove to be only a form of *R. albella*, Loven; it may be identical with the variety *Sarsii* which I found. The occurrence of two species of *Bela* would tend to show that the fauna is not only littoral, but that it also extends into a depth of five or ten fathoms. The collections in general show a somewhat colder fauna than we now have, notably in the case of *Margarita helicina* and *Trophon truncatum*, but not a single species, if we except *Rissoa subcylindrata*, may not be found living on the northern coasts of Britain. With the marine shells I found crab claws (*Cancer pagurus*?) and two specimens of the freshwater *Limnaea truncatula*, Müll, doubtless washed down from some stream or pool above. As compared with the list of species found on the Thatcher Rock our fauna shows a somewhat colder aspect, though not more so than would be drawn from a comparison of the present fauna in the seas off Torquay and Portland. A few of the specimens of *Littorina littorea* from Portland show a curious flattening of the whorls and a tendency to become keeled; it may be that the same brackish marsh as accounts for the presence of *Succinea oblonga* (see later) has affected them. The land and freshwater mollusca found in rubble drift on Portland are so few that it may be convenient to give an appendix of them here as an inducement to further collecting. The most noteworthy feature is the occurrence of *Succinea oblonga*, Drap, which would show an ancient marsh of a brackish nature to have formerly existed at the Bill; the swampy ground near the cliff-edge is probably the remains of this.

The species are as follow :—

SPECIES.	CLIFF NEAR THE BILL.		CHESILTON.
	PRESTWICH.	BULLEN.	PRESTWICH.
<i>Agriolimax agrestis</i> , Linn. ...	X.	—	—
<i>Euthinia tentaculata</i> , Müll. ...	—	—	X
<i>Cyclostoma elegans</i> , Müll. ...	—	X	—
<i>Helix</i> (<i>Fruticiccla</i>) <i>hispida</i> , Linn.	—	X	—
<i>Helix</i> (<i>Fallonia</i>) <i>pulchella</i> , Müll.	—	X	—
<i>Helix</i> (<i>Xerophila</i>) <i>variabilis</i> , Drap. (= <i>virgata</i> , Da Costa.)	X	—	—
<i>Limnæa peregrina</i> , Müll. ...	X	X	X
„ <i>truncatula</i> , Müll. ...	X	—	—
<i>Pisidium</i> , sp.	—	X	—
<i>Planorbis parvus</i> , Say (= <i>glaber</i> Jeffreys)	—	—	X
<i>Pupa muscorum</i> , Linn. ...	X	X	X
<i>Succinea oblonga</i> , Drap. ...	X	X	—
	6	7	4

The two sections from which the above were taken are recorded, one by Prof. Prestwich * and R. A. Bullen, † and the other only by Prof. Prestwich. The former section overlays the Raised Beach.



* Loc. cit, p. 278.

† Geological Magazine, 1894, pp. 431-2.



Helstone.

By E. CUNNINGTON, Esq.



THE earliest inhabitants of Britain were men living by the chase, using only stone weapons ; their sole residue that we can recover are their cremated remains placed usually without any accompaniments under the nearest and easiest available material for a covering or barrow. The next in order would be the use of rough and badly-made baked urns for the cremation.

Helstone, the name of the group of stones now before us, comes from either the Anglo-Saxon *hele*, to hide or to cover, or from *Hel*, in northern mythology, the goddess of the dead. Originally this was a long barrow containing in its centre the nine stones supporting the large top or table-stone, 10½ ft. long by 6 ft. broad, covering the usual interment. The lapse of time has worn away the covering earth and exposed the stones to view as in many other instances. Hutchins gives us a picture of this dolman as I suppose it was in his time ; he represents it to be as perfect as a well-made mahogany table. The poor table, like "Humpty Dumpty, had a great fall," and Manfield rebuilt it, nine stones and all. The grey mare and colt near Gorwell is very similar, being a long barrow 54 ft. long, 25 ft. broad, and about 5½ ft. elevation, covering the dolman or stone-chamber within. Dolman means a stone table from two

Celtic words—"daul" a table, and "maen" a stone. It has been opened, and at the south end are visible three of the megalithic uprights and the top or table-stone; these are about 5ft. to 6ft. high and 2ft. to 3ft. in diameter. The total number of stones composing this dolman is ten, as at the Helstone, four conglomerates and six sarsens.

The barrow opened last week—August 9th and 10th—by the permission of Mr. Manfield, is exactly 130ft. south-east of the Helstone; it has been cut away east and west to its present dimensions of 48ft. by 16ft., but was originally a round barrow of 48ft. diameter. Its height is about 6ft. At a depth of 5ft. rather more than a cart load of large rough stones was found encircling an urn. This urn was resting on the original soil with a thin stone over its mouth and contained the burnt bones. It is 12in. in height, 8in. at the mouth, 9in. at its broadest diameter, and has an incised double zigzag ornamentation near the top enclosing diamond patterns. Two small scrapers and also a small rough celt were found and a small quantity of wood ashes.

In 1878 my attention was drawn to a spot about 100 yards to the north of Blagdon Monument—the Hardy Monument—where the gravel had been carted away, exposing a perpendicular section of a barrow. In the centre of this section a very black part, clearly defined, led me to make an examination. The removal of this part disclosed a round pit of about 6ft. depth and 5ft. diameter. The 2ft. at the base consisted of fine ashes with small pieces of charcoal; the rest, a cairn of large stones. The stones have evidently been placed on the fire while it was burning, as they all had traces of the smoke of the fire. Two whetstones were found in the ashes with several flint flakes and two or three rough celts. The body was entirely consumed by the burning of the heather and gorse, fresh fuel added, and then the stones heaped on the still burning fire.

I must not dwell on the Egyptian system of entombing or on their pyramids, dating back six thousand years, but would mention the Mausoleum built by Artemisia, wife of Mausolus, King of

Caria, about B.C. 353 at Halicarnassus. This was considered one of the seven wonders of the world, and consisted of a basement 65ft. high, surmounted by a pyramid rising in steps to a similar height, on the apex of which stood a colossal group, about 14ft. in height, of Mausolus and his wife in the quadriga. The tomb of Alyattes, King of Lydia, B.C. 618, is mentioned by Herodotus as one of the wonders of Lydia. It was north of Sardis, and consisted of a large mound of earth raised upon a foundation of great stones. On the top of it there were five pillars. Mr. Hamilton in his "Researches in Asia" says that it took him about ten minutes to ride round its base, which gave it a circumference of about a mile. The barrow raised over Hephæstion, the friend of Alexander the Great, cost 1,200 talents or about £232,000 ; this was B.C. 325 at Babylon.

In our own time the Lick Observatory on Mount Hamilton, California, is one of the most remarkable mausoleums. It was built by the desire of the American millionaire, James Lick, whose remains are in a vault within the foundation that support the great Telescope. He left 700,000 dollars for its erection.

Besides the urn containing the calcined bones I exhibit a large diagram of an interment in a barrow at Friar Waddon, where two skeletons were laid side by side, but heads to feet, with an urn, apparently for food, at the head of each.





The Bournemouth Teaf-beds.

By J. STARKIE GARDNER.

Read at Bournemouth, Thursday, June 21st, 1895.



FROM the Bournemouth Cliffs where we stand we have an extensive prospect of a part of the Eocene formation, which once had a wide extension in the direction of France and Germany, but is now greatly denuded and cut up by arms of the sea and ridges of hills, the result of more recent elevation and depression. The London and Hampshire basins, which were formerly continuous, have been severed in two by one of these upheavals. The coast line of the London basin extends from Suffolk down far into Kent, and that of the Hampshire basin, beginning near Worthing, ends at Studland, in sight and but a few miles to the west of us. These coast sections expose repeatedly and in the clearest manner every horizon of the formation from top to bottom. The basins are circumscribed to landward by rims of chalk in the form of downs, the bottom of the basins passing underneath, at a depth where we now stand of a

thousand feet or so. Below the chalk, an oceanic deposit, are beds of clays and sands passing regularly from almost deep-sea deposits into shallow-water and even littoral deposits, and finally into a freshwater Wealden formation, plainly betokening that much of the area was then dry land. This Wealden land area was probably, as far as can be judged, the same to a large extent before as after the great cretaceous submergence. There is nothing to show that the main land and water areas differed very much before and after that stupendous event, however much they may now differ from what they were at the close of Eocene times. For some reason, perhaps not wholly disconnected with the enormous outpourings of lava in India during the cretaceous period, Europe sank and was to a great extent submerged. Particularly its western extremity, and most of all Great Britain and Ireland, were depressed and the waters of the Atlantic rolled over them, leaving, it may be, though even this is improbable, some few rocky islands to denote where the land had been. Thus our country remained for hundreds of thousands, even millions of years, sunk below sea-level to the depth of a thousand fathoms at least. The period of submergence at last came to an end, and the land began to rise again. Back, like the receding tide, rolled the Atlantic waters, and once more Great Britain appeared; but not quite the same as before, for it was covered with the new strata of chalk a thousand feet thick, with masses of greensand and shallow-water deposits beneath, and it may well be by some such mass above, which, however, with the upper chalk layers has since been completely denuded and in part transformed into Eocene deposits. From the time of its upheaval, and most of all perhaps during that process, this mass of strata has been ceaselessly exposed to erosion by sea and dissolution by land; and even when the Eocenes first began to be formed the cretaceous deposit was no longer a continuous sheet, but covered certain areas only. A long time indeed must have elapsed before the lowest Eocene Beds of Great Britain or Ireland began to be deposited; a perceptible interval in the geological record. Of this intermediate time we have no remains in England; its only

visible work is destructive denudation on an enormous scale with upheavals and depressions, particularly in Ireland and Scotland. The earliest Eocene rock we can trace is in the vast lava eruptions of the North Sea, mere fragments of which occupy parts of the North of Ireland and West of Scotland. The included plant-remains, which are magnificently preserved, show beyond all question that the lowest of these lavas are older than the Woolwich and Reading Beds, and that they continued to be poured out until at least the close of the Bag-shot series. That these colossal emissions of lava, only twice paralleled on the world's land surface, affected the stability of land so near as the South of England can hardly be doubted, and the Eocene period in England seems to have been above all one of oscillations. Sometimes the sea stretched over the south of our island, and at other times it receded and left it dry land. The ground whereon we stand was, more essentially than any other, the battle ground between sea and land, and the Eocene beds we shall examine are the results of the struggle. From the first rod of the formation down at the base of the Thanet Sands or Reading Clays, to the last spit at the top of the Hempstead Beds we are aware in the deposits of the presence of a mighty river; and indeed it is to these river deposits and the vast stores of leaves of trees and shrubs and remains of animal life which they have preserved that we are indebted for our knowledge of Eocene terrestrial conditions in England. Every time the sea advanced it left deposits, and every time it receded these marine deposits were covered in one part or another by fresh-water deposits. The continuous changes of level in the area caused the great rivers to flow now into the German Ocean in the direction of the existing Thames estuary, and now into a gulf of the Atlantic towards the Solent. The German Ocean and the Atlantic must at that time have been severed by land, possibly only a narrow isthmus. The first Eocene depression in England came from towards the east and was but slight, depositing the Thanet Sands; the second greater, for it brought the waters of the German Ocean stealing across as far as the confines of Dorsetshire, or beyond. As it receded it left behind it the London

Clay and the masses of unfossiliferous sand above, which exercise the ingenuity of the officers of the Geological Survey, who find the task of separating it from the overlying Lower Bagshot Sands an impossible one. These, with the Woolwich and Reading Beds, almost entirely fresh water, are the deposits of different reaches of the great river *while its estuary faced the east*. United they form the Lower Stage of the Eocene. The upheaval at the close of the London Clay period ended this phase of the Eocene, and the succeeding depression ushered in the next—the Bagshot, or Middle Eocene period. This is distinguished from the preceding by the fact that the great river now emptied itself *to the south* into a bight of the Atlantic characterised by a much warmer sea-fauna, the Bracklesham. The series commences on the Hampshire coast with the sands and pipe-clays of some reaches of the river far removed from the sea. These commence about Corfe and Wareham with the filling in of small lakes, and indeed probably extend as far west as Bovey Tracey. At first the impalpable silt held almost in solution fell in still water as finest ooze—the pottery clays—over which the turbulent delta sands formed an ever-advancing fan-shaped covering, till the lake was filled up, as even the largest lake must be in time. The deposits when dug into therefore reveal a mass of un laminated fine clay, unfossiliferous because so slowly deposited that all vegetable and insect-remains decayed and dissolved away without leaving an impression in the uncompacted ooze, and overspread by coarse grits and sands, false-bedded owing to the many times they have been lifted and shifted and rebedded by floods, freshets, and changes of the river channels. It is worth remarking that these finest precipitates, from which Staffordshire table ware is produced, are confined to the western parts of the old lake basins, while their eastern ends only yield pipe-clays, doubtless because, as the lake became silted up and its area diminished, there was no longer space of still water ample enough to sort the sediment effectually. In other words, in a large expanse of water the impalpably fine sediment would float on and fall at last in a zone by itself far from the in-fall of the river; while in a

more confined space the zone of finest sediment would be overlapped by the zone next in fineness, the two qualities falling and being mingled together; and so on successively, till in a sufficiently small basin only a coarse clay would underlie the current-bedded sand of the delta. Immediately these lake-basins were filled with sediment and levelled up to the general plane the character of the deposits changed, and we have the detritus of shifting river channels perpetually silting up and cutting anew. The mass of the deposit is sharp sand, more or less coarse according to the rapidity and transporting power of the stream, and current-bedded in a miscellaneous manner; but in addition to this the deserted channels for a time presented chains of pools or sometimes perhaps broad sheets of shallow water, which, owing to flood waters and infiltration, became eventually filled with laminated clay. Some of the layers were deposited and sealed over rapidly enough to preserve impressions of the innumerable leaves that drift in every stream at the fall of the year. The lenticular patches of clay and the clay strata in the cliffs at our feet were formed in this way, while the more massive and continuous clay-beds were probably laid down in backwaters. The whole coast section from Boscombe to Studland is, in fact, one magnificent oblique cut through the purely fresh-water reaches of the great river, above tidal influence in its great mass—namely, the older beds west of the coastguard, but subjected to tides between that point and Boscombe. Though the presence of *Teredo*-bored wood might be held to indicate that the beds are partly brackish water, this was not necessarily so, since *Teredo* in both Africa and Australia penetrates hundreds of miles beyond the brackish water limit; and even the oyster beds which occur higher up could not be taken alone as conclusive evidence of marine deposition, since oysters are described by Stanley as occurring in the Congo thousands of miles above the sea and above the cataracts. The beautiful leaf impressions found in the Bournemouth Cliffs are known to all. They occur chiefly in two localities, the easternmost under the Coastguard's flag-staff, and the western under the Martello tower, in many distinct beds, however, at each spot. They

indicate a sub-tropical climate warmer than that of Madeira. The depression throughout the deposition of these beds must have been gradual, but continuous, the change to brackish and salt-water muds, about mid-way between Bournemouth and Boscombe Piers, being scarcely perceptible. These extend almost to Southbourne at the base of the cliff, and contain many fossils in the form of leaf and other impressions, only occasionally distinct, and carbonised fruits. The singular zones of *Nipa* fruit in the Sugar-loaf chimes by Boscombe, and the *Araucaria* twigs and spiny palm-bark just beyond have been described in the Geological Society's Journal. Overlying the dark sandy marine beds formed in still water are beds of very different quality, shingles and sands thrown down by the pounding surf, the beach deposits of an advancing sea. These pass into the more open sea deposits of the Bracklesham Beds of Hengistbury and Highcliff, with which the Middle Bagshot series, and indeed the Middle Eocene, closes. All these beds were deposited by the great river flowing from the west and to the south, and by the Atlantic waters advancing from the south and west, the wave of depression permitting the Brackleshams to be spread over Surrey, while the surrounding chalk hills and the Jurassics to the west were uncrumpled, covered by the older Eocenes, and thus protected for the time from the effects of erosion. Elevation ended the Bracklesham period, and subsidence brought in the Barton Sea, a subsidence extensive enough to submerge the isthmus assumed to exist, and mingle for the first time in Eocene days the waters of the German Ocean and the Atlantic. A notable lowering of the sea temperature ensued, banishing the more tropical of the Bracklesham mollusca and corals, and bringing in again many time-modified London Clay shells. The vicinity of the river is felt throughout all these marine deposits in Hampshire till an upheaval closed the Barton episode and ushered in the long series of oscillations, which caused the immense series of brackish, marine, and freshwater deposits of the Headon, Osborne, Bembridge, and Hempstead formations, during which, to all appearance, the London basin area remained land. This is an epitome of the Eocene events in England, which

to tell in detail would occupy a volume. If much sounds theoretical it is yet capable of proof by observation, inference, and analogy, and the Eocene deposits at least are as an open book to those accustomed to their study.





Report on Observations of the First
Appearances of Birds, Insects, &c., and the
First Flowering of Plants
IN DORSET DURING 1894.

By NELSON M. RICHARDSON, B.A., F.E.S.



THE number of observers has this year been nearly doubled by the addition of eight new ones, some of whom live in quite new localities, which gives a special interest to their observations. The names of those who have sent in returns are designated by their initials, and are as follow :—J. C. Mansel-Pleydell, Whatcombe, near Blandford ; N. M. Richardson, Montevideo, near Weymouth ; E. R. Bankes, The Rectory, Corfe Castle, Wareham ; Rev. O. P. Cambridge, Bloxworth Rectory, Wareham ; H. J. Moule, Dorchester ; T. R. Atkinson, Sherborne ; Col. F. J. Stuart, The Manor House, St. Mary's, Blandford ; Jas. Andrews, The Bank, Swanage ; Job Mullins, Wylde Court, Hawkechurch ; E. S. Rodd, Chardstock House, Chard ; G. Hibbs, Bere Regis ; D. Curme, Childe Okeford, near Blandford ; Rev. Canon R. F. Wheeler, Hazelbury Bryan Rectory ; S. Creed, Cheddington, Misterton ; Miss Payne, Weymouth ; and H. S. Gray, Rushmore.

Rev. W. J. Rowley, who sent a very full list of flowers in 1893, has sent no return this year.

The only rare bird noticed in the Returns this year is the Bittern (Great or Common). A specimen of this bird in very good plumage was shot by Mr. W. Edmunds, of Coombe Farm,

Swanage, in Dec., 1894, and it is a somewhat singular coincidence that in 1886 Mr. Edmunds' father secured that rarer bird, the Little Bittern, on the same farm. (J. A.)

Last year specimens of no less than ten scarce species of birds were noted by about half the number of observers, from which it would appear that but few rare birds visited Dorset this year.

Mr. Mullins mentions in a note that in the last sixty years the average earliest date of hearing the cuckoo at HAWKENURCH is April 19th., whereas in 1894 it was heard in his locality on March 31st. All the records of this kind are early, ranging from March 31st at WHATCOMBE to April 10th at WEYMOUTH.

The swallow was a day later in Dorset, having been seen at HAWKENURCH on April 1st, whilst the swift did not appear until April 29th at CORFE CASTLE, being like the nightingale, which sang first at Bloxworth on April 11th, a day later in coming than in 1894.

These four birds are the most satisfactory for observation, as they force themselves more upon our notice than any of the others in the list, with the exception perhaps of the chaff-chaff, whose incessant note, when it once begins, forms one of the chief features of the bird song in gardens. This little bird is not recorded until March 22nd, a week later than last year. An interesting investigation which will be more practicable after the taking of a few more years' records is the line of migration of birds as far as Dorset is concerned. We shall then be able to ascertain at what parts of the county they first arrive, and how long it takes them to reach their final destinations—that is, supposing them to travel gradually onwards and not to make a direct flight to the place they intend to stop at. But at present it would seem that they do not always reach the same places in the same order. Taking the four years ending 1894 we have for the cuckoo :—

	1st Record.	2nd Record.	3rd Record.	4th Record.
1891	Whatcombe	Bloxworth 0	Corfe 2	Weymouth 5
1892	Whatcombe	Bloxworth 1	Corfe 11	Weymouth 19
1893	Corfe	Bloxworth 4	Whatcombe 5	Weymouth 12
1894	Whatcombe	Bloxworth 1	Corfe 2	Weymouth 10

The numbers are the numbers of days later than the first record. Here WEYMOUTH is always last, which I put down partly at all events to the bare nature of the neighbourhood, as I think that the cuckoo, like many other birds, prefers a wooded district, and is more thinly scattered where trees are rare.

WHATCOMBE has a slight advantage over BLOXWORTH, but never more than one day, whereas CORFE is in three years later, and in one year earlier than these two places.

It will, of course, often happen that the bird is not noticed on the first day of its arrival, but a long series of observations will tend to eliminate such sources of error.

Similar records of the swallow show more discrepancy, but the almost silent swallow is much more liable to be overlooked than the noisy cuckoo. Taking the records of the chaffinch in the same way CORFE comes first and WEYMOUTH third in each year; WHATCOMBE fourth in three cases and second in one; BLOXWORTH second in its only three records.

The nightingale seems more uncertain, but in the four years it is only recorded twice at WEYMOUTH and CORFE CASTLE.

Comparing the records for 1894 with those for the year before it we find that 1893 has 37 records earlier than 1894, whilst the latter has 26 records earlier than 1893. We obtain a nearly similar result by taking each table separately; thus in birds the proportion is 11 to 6, in insects, &c., 8 to 8, in plants 18 to 11, so that in spite of some early records mentioned by Mr. Mullins, 1894 must be considered a later year than 1893.

Amongst the earlier dates in 1894 are swallow, April 1st, HAWKCHURCH, which is earlier than usual, but bears no comparison with the date of March 18th at SHERBORNE in 1893; cuckoo, March 31st, WHATCOMBE and near HAWKCHURCH, a very early date. Mr. Mullins says that the average date for 60 years at HAWKCHURCH is April 19th. Large garden white butterfly, February 26th, WHATCOMBE, possibly a forced specimen, which pupated in or near a greenhouse; glow-worm, March 27th, BERE REGIS (can this be correct?); orange tip butterfly, March 18th, WHATCOMBE; meadow-brown butterfly,

April 4th, WHATCOMBE ; hawthorn, April 6th, WEYMOUTH ; harebell, April 3rd, HAWKCHURCH ; ground ivy, February 3rd, CHILDE OKEFORD ; hazel, January 1st, WEYMOUTH. This is the small bright crimson female flower, which seems often to expand before the new year and to get killed by frost, after the departure of which a new set of female flowers open. The catkins are more hardy, and do not suffer so much from the cold.

Mr. E. S. Rodd (CHARD) comments on the earliness of most trees and flowers in the spring except the ash, which he says was remarkably late ; also on the great quantity of bloom in the blackthorn and whitethorn and most flowering shrubs, which he attributes, no doubt rightly, to the thorough ripening of the wood in the hot dry sunny summer of 1893.

Mr. Mullins says "The hazel nut was much in bloom by the 14th of February, but the great frost that followed immediately after killed nearly all the early bloom. However, the succession of fine open weather caused a sudden outburst of general flowering, which gave a magnificent set of fruit, it being a record year for nuts. The horse chestnut, hawthorn, blackthorn, and elder showed expanded blossoms a fortnight earlier than usual, as did also the laburnum, while many other plants flowered out of season." He adds that lime trees have had fewer flowers and leaves than usual, and suggests the great drought of 1893 as the cause of these irregularities.

Mr. E. R. Bankes (CORFE CASTLE) sends the following note :—

"In direct contrast to its predecessor, the year 1894 is chiefly memorable for its excessive rainfall and for its wet, cold, and sunless summer. January, except for the intense frost of January 2nd to 7th (on January 5th at Corfe Castle Rectory the day *maximum*, as shown by thermometer on east wall of house and 3½ ft. above ground, was only 19° F, whilst in London it was one degree lower!), February, and the first half of March were extremely mild and wet ; then followed a spell of very dry and warm weather with an abundance of bright sunshine, and this lasted till about the middle of April, when frequent storms again became the order of the day. May was cold and wet, nor did matters improve until June 24th, which saw the beginning of about a fortnight's fine and hot weather. This was succeeded by storms and heavy rains, which prevailed more or less until August 24th, when we enjoyed one

week of brilliant sunshine. September and the earlier part of October proved fairly dry, but cloudy on the whole, with much fog. During the last half of October and the first fortnight of November it rained nearly incessantly, and in such torrents as to cause almost unprecedentedly high and most destructive floods in many parts of the country.* The rest of November was for the most part dry, fine, and mild, but though December was also mild it was stormy. From a lepidopterist's point of view it proved a most disappointing season in Purbeck and the neighbourhood. Butterflies and moths were for the most part remarkably scarce, and the weather was in general so stormy that one had very little chance of rendering a good account of what few species were to the fore. Up to a certain point it was a wonderfully early spring, and there was, as regards early appearances of birds, plants, and insects, a neck-and-neck race between it and the phenomenal one of 1893, some of my records being almost or quite identical; but from the middle of April onwards, owing to the wet and cold, things became more and more backward, and the contrast was most marked. Early in June large numbers of the 'Painted Lady' butterfly (*Vanessa cardui*) in wasted condition suddenly appeared all along the south coast, and there can be no doubt that these were immigrants from the Continent, for, as the insect was almost entirely absent from this country in the previous year, they could not have been British-born. Under such circumstances the descendants of the immigrants usually abound in August and September, but the ungenial summer was so fatal to the larvæ that the butterfly was then quite scarce. The well-known 'Large Garden White' butterfly (*Pieris brassicae*) could almost prove an *alibi*, and I can only be sure of having seen one specimen during the whole year! But, however bad the season may be, some few species are sure to be unusually common; of the more aristocratic moths this was the case with *Dasygampa rubiginea*, of which a few were taken at ivy bloom, and *Heliothis peltigera*, of which many larvæ were found feeding on flowers of *Ononis arvensis*. My good fortune in securing a specimen of *H. armigera* near Lytchett Matravers has been already recorded in the Ent. Mo. Mag., Ser. 2, vi., 49, in which magazine notes on other species of Lepidoptera, both large and small, met with in the county in 1894 will shortly appear. March, 1895."

I append the following tables, to which I have added for convenient reference a column of the earliest recorded appearances, &c., in the whole of Dorset:—

* Mr. Rodd (CHARD) says: "The floods during November in the S. of England were the greatest remembered for over 50 years, and for a larger period in some neighbourhoods, and immense damage was done throughout the S. of England."

FIRST APPEARANCES OF BIRDS IN DORSET IN 1894.

	Earliest Record	J. C. M. P.	Weymouth.	E. R. R.	Cote Castle.	O. P. C.	Bloxworth.	E. J. Z.	Blanford.	T. R. A.	Sherborne.	J. M.	Hawkechurch.	E. S. R.	Charl.	G. H.	D. C.	R. F. W.	Hazlbury.	S. C.	Chiddington.	J. A.
Flycatcher	Nov. 10	Ap. 20	May 15																			
Fieldfare	Nov. 10	Nov. 10																				
Blackbird	Dec. 27	Dec. 27																				
Redwing	Dec. 27	Dec. 27																				
Nightingale	Mar. 27	Apr. 17																				
Wheatear	Mar. 27	Apr. 27																				
Willow Wren	Mar. 27	Apr. 27																				
Chaffinch	Mar. 27	Apr. 27																				
Whitethroat	Mar. 27	Apr. 27																				
Sky-lark	Apr. 21	Nov. 10	Mar. 11																			
Rook	Feb. 18	Dec. 18																				
Chicken	Mar. 31	Mar. 31																				
Swallow	Apr. 1	Apr. 1																				
Song Martin	May 21	May 21																				
Swift	Apr. 29	May 29																				
Turkoe	May 5	May 5																				
Woodcock	May 5	May 5																				
Corncock	May 5	May 5																				
Wren	Apr. 24	Apr. 24																				
Red-backed	Apr. 8	Apr. 8																				
Shrike	Apr. 15	Apr. 15																				

N. Nesting. E. First Egg. * Song first heard. V. Young birds hatched.

Weymouth. — Swift, May 1 (Miss Payne). Weymouth. — Blackbird, first egg, Mar. 1.
 Earliest Appearances. — Plover (Great Plover, first rising not heard) Feb. 21. Numerous Plovers and Redwings Mar. 22-24.
 Swallow, Weymouth. — Swift, Mar. 21 (M.D.). Swallow, Weymouth. — Swift, Mar. 21 (M.D.).
 By Mr. H. Butler, of Bournemouth (G. R. H.). — Swallow, Weymouth. — Swift, Mar. 21 (M.D.).
 By Mr. H. Butler, of Bournemouth (G. R. H.). — Swallow, Weymouth. — Swift, Mar. 21 (M.D.).
 By Mr. H. Butler, of Bournemouth (G. R. H.). — Swallow, Weymouth. — Swift, Mar. 21 (M.D.).

FIRST APPEARANCES OF INSECTS, &c., IN DORSET IN 1894.

	Earliest Dorset Record.	J. C. M. P. Whitcombe.	N. M. R. Weymouth.	E. R. B. Corfe Castle.	O. P. C. Bloxworth.	H. J. M. Dorchester.	T. R. A. Sherborne.	J. M. Ilawkechurch.	H. S. Gray. Rushmore.	G. H. Bere Regis.	D. C. Childe Okeford.	R. F. W. Hazelbury Bryan.	S. C. Cheddington.
Rose Beetle	Aug. 9	May 15	May 19	Aug. 6	May 14	..	..	Aug. 20*	..	May 13	..	..	May 18
Cock-Chaffer	May 13	June 26	May 21	..	..	..	..	Ap. 24	..	..	..	..	..
Fern-Chaffer	June 15	Mar. 15	June 26	May 12	..	..	..	Ap. 26*	..	Mar. 27	..	..	Ap. 11
Bloody-nose Beetle	Mar. 27	May 15	Feb. 27	Mar. 25	..	..	..	Jan. 27	..	..	..	..	Mar. 6
Glow-Worm	Jan. 18	Feb. 21	Ap. 5*	Mar. 8	..	..	..	Mar. 27	..	..	..	..	Ap. 20
Common Hive Bee, h.	Feb. 11	Ap. 2	Ap. 23	..	..	..	..	Mar. 27	..	..	..	..	..
Wasp, h.	Feb. 26	Feb. 26	Ap. 6	..	..	..	..	..	..	..	..	..	..
Large Garden White Butterfly	Mar. 18	Mar. 19	Ap. 23	Ap. 4	..	..	..	..	..	..	..	..	..
Small Orange-Tip Butterfly	Mar. 18	Mar. 18	Ap. 23	May 21	..	..	..	Ap. 12	..	..	..	..	..
Meadow-Brown Butterfly	Ap. 28	Ap. 4	June 25	June 21	..	..	..	Ap. 10*	..	..	..	..	..
Wall Butterfly	Mar. 28	..	May 11	May 18	..	..	..	June 12*	..	..	..	..	..
Brimstone Butterfly, h.	Mar. 24	Ap. 3	..	..	..	..	..	May 17*	..	..	..	..	..
Painted Lady Butterfly, h.	June 17	Mar. 31	..	June 4	..	..	..	..	..	..	..	..	..
Chimney Moth	June 22	June 17	..	July 28	..	..	..	..	..	..	..	..	..
Curculionid Moth	July 22	..	..	..	..	..	..	..	..	..	..	..	..
Viper	Feb. 24	..	..	..	..	..	..	..	..	..	..	..	..
Frog Spawn	Feb. 9	Feb. 21(3)	..	Mar. 21	..	..	..	Mar. 4	..	..	..	..	..

* Scarce. † Below the average. ‡ Abundant. h. hibernated.

CORFE CASTLE.—Records of Glow-Worm and Chimney Moth from Swanage. Small White Butterfly last seen Oct. 8. Only one specimen of Large White Butterfly observed during 1894. Orange-Tip Butterfly at Bournemouth. Painted Lady Butterfly, freshly-emerged specimen, July 28.

HAZELBURY BRYAN.—Lady-Birds and Humble-Bees unusually abundant. Cuckooing-birds.—All Butterflies scarce.

BLOXWORTH.—Wasps' nests very scarce, but one strong one on Oct. 17; numbers flying about and coming into the house all Oct. and up to Nov. 4.

BLANDFORD.—Brimstone h. Mar. 16 (F. J. S.) GUARD.—Brimstone, Mar. 22; May Fly, R. Axe, May 18. (F. S. R.)

WEYMOUTH.—Wasp, Feb. 20. Small White Butterfly, Ap. 2. (Miss Payne.)

EARLIEST DORSET RECORDS OF PLANTS IN FLOWER IN 1894—(CONTINUED).

	Earliest Dorset Record.	J. C. M. P.	Whitcombe.	N. M. R.	Weymouth.	E. R. B.	Corfe Castle.	O. P. C.	Bloxworth.	T. R. A.	Sherborne.	J. M.	Hawkhurth.	E. S. R.	Chard.	G. H.	Dere Regis.	D. C.	Childe Okeford.	R. F. W.	Hazelbury Bryan.	S. C.	Cheddington.	H. J. M.	Dorchester.	Weymouth.
Yarrow
Oxeye Daisy
Muscar Hawkweed
Marshell
Greater Birdweed
Water Mint
Ground Ivy
Wytch Elm
Hazel
Gowslip
Spotted Orchis
Bluebell

* Had been in flower some days.

Ripe Fruit:—HAWKCHURCH.—Hawthorn, Aug. 23; Elder, Sept. 10; Hazel, Aug. 20. CHEDDINGTON.—Blackthorn, Sept. 24; Elder, Sept. 20; Hazel, Sept. 19.

BERE REGIS.—Blackthorn in flower, Dec. 20, 1893.

CHEDDINGTON.—Hawthorn in flower, Pipplepen, Ap. 21; Gate Lane, Ap. 31; Park Gate, Ap. 30. General flowering first week in May. A Cowslip flower occasionally all the spring.

HAWKCHURCH.—Hazel Nuts very abundant. HAZELNUT BAYN.—Wheat in ear June 15.

CORFE CASTLE.—Hawthorn in flower in the parish on Ap. 10, but not till Ap. 17 on the bushes watched for observations.

Mr. HENRY S. EATON (Past President of the Royal Meteorological Society) has kindly, at my request, undertaken to write the report on the rainfall returns of 1894. I shall be much obliged if all Dorset rainfall observers will send their returns for 1895 to me as usual, if possible on the improved forms provided by the Club, which will be sent round to observers, and may be obtained from me at any time.

NELSON M. RICHARDSON, *Hon. Sec.*,
Montevideo, nr. Weymouth.



Returns of Rainfall, &c., in Dorset.

IN the present year reports have been received from three additional stations — Blandford St. Mary (Colonel Stuart), Godmanstone (Captain Acland), and Bere Regis (G. Lys). On the other hand the record at Shaftesbury has come to an end. This gives a net gain of two stations, raising the total to 39, whereof there are 36 in Dorset, one in Devon, and two in Wilts. Those observers who have supplied statements of the daily rainfall on the forms issued last year have an asterisk prefixed to their names. In most cases the gauges are examined in the morning at nine o'clock, and any rain that has fallen in the previous 24 hours is entered to the day before. This practice is recommended; but several observers have entered it to the same day, though no alterations have been made on that account in the table of monthly rainfall (Table I.) A few of the registers show that the importance of examining the rain gauge systematically from day to day has not been sufficiently appreciated, and that small amounts of rain have been allowed to accumulate. The results are too large an entry for the day when the rain is at last measured, though the total for the month may be correct, and an insufficient number of rainy days. Four of the 18 daily records have no entry of '0 lin. of rain; yet such falls happen every year, and Table III. is therefore not so complete as it might have been made had this point been attended to.

Table II. is a statement of the annual rainfall at each station for 1893 and 1894, contrasted in 25 instances with the adopted average fall for the period 1848-92. The numbers in the third column of this table correspond with those in the first column of Tables I. and IV. in the appendix to the paper on Dorset Annual Rainfall, 1848-92. Of the two years 1893 and 1894 the former was the driest since 1857, the ratio of the rainfall of the Dorset stations to the average being 80; the extremes, 93 at Parkstone and 72 at Beaminster. In 1894 the corresponding values were 123 for the Dorset stations, 137 at Swarage (Pix), and 112 at Haselbury Bryan. The year 1894 has been a decidedly wet one. Since the commencement of records the rainfall, as a whole, has only been exceeded in 1848, 1852, and 1872. Its incidence and distribution will be better understood by comparing the ratio of the rainfall rather than the depth of rain at the separate stations (Table II.) Examined in this way it will be seen that the values in excess of the average are, with the exception of Cheddington, confined to a belt some five miles wide along the south and south-east coast. In this belt the average rainfall of eleven stations was 39.75in., and the ratio 127.4. For the twelve remaining stations the averages were respectively 43.07in. and 119.4. This proves that the rain was chiefly in excess along the coast, and it attained its greatest intensity in the Isle of Purbeck, notwithstanding the more abundant rainfall at the inland stations.

The greatest depth of rain occurred at Cheddington, where the heavy rains of August 25th-26th, 10.8 per cent. of the fall for the year, raised the total to 55.21in. and the ratio to 130. The next highest amount was 54.74in. at Haselbury Bryan. Here the ratio is only 112, the lowest of all in the county. Melbury comes third with 51.18in.; but the conditions are changed as the old gauge was superseded in 1892 by a new one at a less elevation above the ground in a different position, and the present observations are not now comparable with those taken prior to 1892. Then follow the new stations, Godmanstone 50.33in. and Steepleton 50.07in. The lowest falls reported were Smedmore 31.81in. (1) and Chesil 36.06in.

Falls of rain to the depth of at least an inch in the 24 hours ending nine a.m. occurred in every month, except April, May, and June, on 23 days in the year, the largest amounts and falls of 2in. and upwards being as under :—

January 8th, Creech Grange, 1·05in.

February 17th, the only day in the year in which more than 1in. fell at every station, Creech Grange 2·00in.

March 12th, Haselbury Bryan 1·12in.

July 10th, Swanage (Pix) 1·04in. ; 15th, Sturminster Newton 1·05in. ; 22nd, Holwell 1·41in. ; 23rd, Swanage (Pix) 1·35in. ; 24th, Gillingham 1·42in. ; 26th, Holwell 1·09in. ; 28th, Bridport, Coneygar and Portville, each 1·08in.

August 24th, Cheddington 2·00in. ; 25th, Cheddington 3·09in., Bridport, Portville 2·78in. Coneygar 2·63in., Cattistock 2·22in., Beaminster 2·15in.

September 2nd, Swanage (Andrews and Pix) 1·23in. ; 22nd, Langton Herring 1·32in. ; 24th, Cheddington 1·03in.

October 26th, Cheddington 1·18in. ; 31st, Haselbury Bryan 1·26in.

November 7th, Haselbury Bryan 1·01in. ; 11th, Wyke Regis 2·20in. ; Furze Brook 2·16in., Swanage (Andrews) 2·06in., Weymouth 2·06in., Swanage (Pix) 2·05in., Smedmore 2·04in., Creech Grange and Wareham 2·00in. each, exceeding 1in. at all but two of the remaining stations ; 12th, Bridport, Portville 2·46in., Wyke Regis 2·13in. ; 13th, Haselbury Bryan 1·53in. ; 14th, Haselbury Bryan 1·87in.

December 11th, Creech Grange 1·41in.

Dry weather, with little rain or none at all, prevailed between the middle of March and the 2nd of April ; from the 23rd of June to the 7th of July ; from the 8th to the 20th of September ; from the 25th of September to the 19th of October ; and from the 21st of November to the 5th of December.

One of the most noteworthy features of the year was the heavy rains, accompanying thunderstorms, on the 25th and 26th of August. These were very severe in the valleys of the Brit and upper end of the Axe and its tributaries, extending thence to

the Parrett, in Somerset. Besides giving rise to destructive floods at Bridport, Beaminster, Yeovil and other towns and villages in South Somerset, the rain did much damage among the hills between Beaminster and Cheddington, especially White Sheet Hill, by breaking up roads and causing landslips from the banks of hollow lanes. In the country between $2^{\circ}30'$ and $2^{\circ}50'$ west longitude it was the heaviest fall of rain in the year, and was thus distributed among the nine stations within that area proceeding from south to north :—

Station.	24th.	25th.	Total.
	In.	In.	In.
Langton Herring	1.89	1.62	2.51
Portisham	1.64	1.73	3.37
Steepleton	1.65	1.64	3.29
Bridport, Portville ..	1.25	2.78	4.03
.. Coneygar	1.14	2.63	3.77
Cattistock	1.99	2.22	4.21
Beaminster	1.59	2.15	3.74
Cheddington	2.00	3.99	5.99
Melbury	1.95	1.65	3.60

At South Petherton, in Somerset, about eight miles somewhat west of north from Cheddington, the rainfall on these two days was 3.49in. ; but at Rousdon, ten miles west of Bridport, it was only 1.08in., and the same at Parkstone in the extreme east of Dorset. At Swanage (Burt) it was 1.04in. ; Chalbury, .87in. ; and Sturminster Newton, 1.25in.

With respect to these storms Mr. S. Creed, of Cheddington, has written—"The first storm began here just after 5 a.m. and ceased about 8.30 a.m. on the 25th (so had to be booked on 24th). The second storm began about 10.30 p.m. on the 25th and ceased about 1.30 a.m. on the 26th (Sunday morning). The width of the second storm in its greatest severity was only about one mile, extending from $\frac{1}{4}$ mile east to $\frac{1}{4}$ mile west of Cheddington, coming from Haselbury Plucknett and passing on southward between Beaminster Down and Beaminster. There appeared to be not half as much rain at and west of Beaminster as there was to the east."

Further particulars of the rain at Beaminster have been supplied by Mr. R. Hine through Mr. Creed. "Rain had fallen heavily for several days previously to the flood which did such extensive

damage here on the night of August 25th-26th. On Saturday, August 25th, heavy rain fell early in the morning and at intervals during the day, so that the ground was well saturated and the streams full of water almost to overflowing. During the evening dark clouds obscured the sky, and at 10.30 p.m. it was intensely dark. At 11 p.m. rain began to fall, not heavily at first, but the drops were of unusually large size. About 11.30 p.m. it was raining very fast, and at midnight the rain began to tell on the small streams coming down from the hills around the town." Then follows a description of the ravages caused by the flood—"The rain gradually ceased to fall about 1 a.m. The largest amount fell to the north, north-east, and east of the town."

At Langton Herring two severe thunderstorms on the 25th. The first began at 3.45 a.m., and the second ceased at 11.30 p.m.

Much more widely distributed were the persistent rains from the 20th of October to the 20th of November. They reached a climax between the 11th and 14th of the latter month, and the ground being by that time thoroughly saturated very extensive inundations succeeded. The following particulars for these four days have been extracted from the daily records:—

	11th.	12th.	13th.	14th.	Total.
	In.	In.	In.	In.	In.
Beaminster	1.32	1.64	1.03	.81	4.80
Bridport, Coneygar	1.00	1.46	.61	.83	3.90
" Portville	1.37	2.46	.66	.85	5.34
Cattistock	1.29	1.45	1.12	1.20	5.06
Chalbury	1.12	.91	.96	1.48	4.47
Cheddington	1.37	1.62	1.38	1.43	5.80
Corfe Castle, Furze Brook	2.16	.94	.71	1.13	4.94
Creech Grange	2.00	.90	.60	1.12	4.62
Godmanstone .. .. .	..	..	..	..	5.74
Haselbury Bryan	1.31	1.92	1.53	1.87	6.63
Holwell .. .. .	.93	1.37	1.03	1.16	4.49
Langton Herring	1.50	.97	.59	1.13	4.19
Lytchett Minster, Yarrells	1.35	.83	.74	.90	3.82
Melbury .. .. .	..	..	..	..	5.63
Parkstone	1.66	.93	.65	.99	4.23
Portisham	1.04	.93	.65	1.30	3.92
Sturminster Newton .. .. .	.81	1.28	1.10	.79	3.98
Swanage	1.98	.65	.32	.76	3.71
Weymouth	2.06	1.49	.72	1.16	5.43
Winterbourne Steepleton	1.26	1.13	1.02	1.23	4.69
Winterbourne Whitechurch, Whatcombe ..	1.27	1.00	.94	1.40	4.61
Rushmore	1.05	1.33	1.17	1.18	4.73
Larmer	1.06	1.32	1.16	1.10	4.64
Rousdon	1.45	1.15	.90	.56	4.09

Bloxworth, Rev. O. P. Cambridge. Of the November rainfall 1·47in. fell in the night of the 11th, 1·26in. on the 12th, 1·67in. in the night of the 13th up to noon of the 14th, and ·65 between noon and 3 p.m. of the 14th ; so that in the three days from sunset on the 11th to 3 p.m. on the 14th 5·05in. fell.

[Bridport, Portville. The observer was absent at the time ; but believes the 2·46in. entered on the 12th November to be correct.—H. S. E.]

Cheddington, S. Creed. From October 20th to November 22nd, 34 days, rain fell on 32 days to the depth of 14·26in. On November 14th ·70in. of rain within half an hour.

Godmanstone, Captain Aeland. From October 20th to November 18th rain was measured every day for 30 successive days, the total fall being 14·75in., and ·78in. fell on November 20th, making 15·53in. in 32 days.

Haselbury Bryan, Rev. Canon R. F. Wheeler. In the 30 days ending with November 18th 16·32in. of rain fell.

Parkstone, R. H. Barnes. Rain every day on 28 days, from 20th October to 16th November inclusive, during which time 10·93in. fell.

Swanage, J. Andrews. In 28 consecutive days, October 20th to November 16th, 10·98in. of rain fell. In the 24 days immediately preceding this date only ·09in. fell. The 2·06in. on November 11th was the heaviest fall measured here since the gauge was established.

Swanage, F. A. Burt. From October 20th to November 16th 10·06in. of rain fell on the 28 consecutive days.

Wyke Regis, Mrs. Pretor. On November 11th and 12th 4·33in. of rain fell.

The depth of rain and the number of days on which it fell increased with the height above sea-level alike in the dry year 1893 and the wet year 1894. The data are too meagre and not sufficiently precise to place much confidence in Table III. ; but as the rainfall for the two years only exceeds the average by 1·7 per cent., the results, so far as they go, are probably a

tolerable approximation to the truth. Summarised they are as under:—

Elevation above Sea-level.				No. of Stations.	Average Elevation.	Depth of Rain.	Rainy days "lin. and more.
Ft.					Ft.	In.	
Above	600	..	..	1	604.0	44.91	187.0
Between	500 and 600	..	..	0			
"	400 and 500	..	..	0			
"	300 and 400	..	..	5	328.4	39.96	175.1
"	200 and 300	..	..	5	238.6	34.94	167.7
"	100 and 200	..	..	7	157.6	32.56	160.9
Below	100	..	..	11	37.1	31.18	154.5

TABLE I.—(CONTINUED).

Name of Observer.	Station.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
P. Styring ..	Poole (West Street) ..	4.30	2.43	1.45	2.44	1.25	1.43	5.74	2.11	2.91	4.55	6.45	1.82
W. Sykes ..	Portland ..	4.11	2.95	1.43	2.44	1.81	2.35	4.48	4.11	3.75	3.63	6.88	2.82
Rev. W. R. Waugh ..	Portland, Chesil ..	3.18	2.47	1.31	2.39	1.42	1.50	4.65	2.37	3.48	3.60	7.39	2.42
Colonel G. P. Mansel ..	Sturminster Newton (Riverside) ..	3.74	3.04	1.07	1.07	1.04	1.83	4.43	1.16	2.14	2.03	7.14	1.92
A. R. Hallett ..	Swanage (The Bank) ..	3.00	2.50	1.60	2.14	1.81	2.75	6.21	1.89	2.17	4.14	6.20	2.13
J. Andrews ..	" ..	4.80	3.30	1.60	2.00	1.26	1.75	6.94	1.93	3.42	4.70	6.46	2.41
Rev. H. Dix ..	" ..	4.47	3.15	1.64	2.17	1.27	1.83	7.06	1.97	3.50	4.64	6.56	2.53
E. A. Hart ..	" (I. Gordon Villas) ..	4.47	3.15	1.64	2.17	1.27	1.83	7.06	1.97	3.50	4.64	6.56	2.53
W. R. Fryer ..	Verwood Manor ..	4.47	3.17	1.78	2.50	1.53	2.35	4.39	2.14	1.96	4.58	6.95	2.30
S. W. Bennett ..	Warcham (Castle Gardens) ..	4.40	2.97	1.32	2.13	1.67	1.98	5.30	2.52	3.27	4.10	6.22	2.78
O. C. Farrer ..	" Blunegat Hall ..	3.48	2.96	1.45	2.17	1.11	1.73	4.95	2.10	3.00	4.18	6.09	2.84
A. R. Eyles ..	Weymouth, Nodde ..	3.36	2.98	1.12	1.50	1.52	1.78	4.49	2.74	3.29	3.74	7.82	2.21
H. Stilwell ..	Winterbourne Steepleton Manor ..	4.93	3.88	1.74	2.97	2.31	2.57	4.70	4.18	3.81	5.10	8.55	4.01
L. C. Mansel-Pleydell ..	Winterbourne Whitchurch, Whatcombe ..	4.47	3.47	2.11	2.39	2.82	2.88	4.87	1.83	2.77	4.14	7.07	3.74
Mrs. Pictor ..	Wyke Regis (Hillfield House) ..	3.78	2.81	1.21	1.81	1.75	2.03	4.07	2.09	3.75	3.52	9.03	2.26
C. E. Peck ..	Rosslon ..	3.63	2.77	1.50	2.10	2.51	2.10	4.53	2.06	2.48	3.70	6.89	2.63
General Pitt-Rivers ..	Larmer ..	4.30	4.00	2.28	3.19	2.25	2.85	5.81	2.54	2.43	4.23	8.14	3.20
" ..	Rushmore ..	4.03	4.17	2.39	2.97	1.84	2.82	5.57	2.07	2.84	4.29	8.38	3.62

TABLE II.—COMPARISON OF RAINFALL IN 1893 AND 1894 WITH THE AVERAGE.

Station.	Approximate Height of Rain Gauge.		No.	Adopted Average Annual Rainfall.	Rainfall in 1893.			Rainfall in 1894.		
					Total Depth.	Difference from Average.	Ratio.	Total Depth.	Difference from Average.	Ratio.
	Ground.	Above Ground.								
Barnstaple Vicarage .. ..	..	..	3	In. 30.31	In. 28.35	- 19.96	72	In. 46.71	In. - 17.40	119
Bere Regis Vicarage	210	..	4	32.76	20.69	- 0.07	81	..	..	..
Blandford St. Mary	185	..	..	..	..	..	..	42.38	..	..
Bloxworth Rectory	120	..	..	..	27.05	- 7.33	78	38.85	+ 0.80	150
Bloxworth Rectory Hill	200	..	..	..	25.51	..	..	41.48	..	..
Bubop, West Bay Road (Purville) ..	100	..	..	..	22.41	- 17.18	76	42.28	..	..
Cattuck Lodge	850	..	15	42.58	32.40	- 17.18	76	49.13	+ 7.20	117
Chubb's Weston	850	..	15	42.58	32.40	- 17.18	76	49.13	+ 7.20	117
Cheshington	664	..	17	42.56	34.00	- 1.85	81	53.21	+ 12.65	130
Cord Castle, Furze Brook	117	..	18	34.52	28.00	- 6.52	81	42.81	+ 8.32	124
Creech Grange	200	..	19	30.70	28.10	- 6.00	76	46.37	+ 9.57	126
Cullington	211	..	20	33.12	27.90	- 5.22	81	39.15	+ 6.03	118
Cullington Manor	320	..	..	..	..	..	..	50.31	..	..
Hamworthy (Belle Vue)	12	..	27	28.37	23.34	- 5.03	82	50.33	+ 8.01	124
Hawthorn Rectory	395	..	28	49.01	37.42	- 11.59	76	61.74	+ 5.73	112
Hidwell (Weston)	250	..	..	..	25.13	..	..	41.92	..	..
Horton Vicarage	135	..	..	..	24.81	..	..	38.69	..	..
Lytham Rectory	155	..	31	50.39	24.90	- 6.33	70	37.52	+ 7.13	123
Lytham Rectory (The Varrells) ..	60	..	33	30.19	24.70	- 6.73	81	30.21	+ 5.72	119
Melbury Sampford	660	..	..	..	32.61	..	..	51.13	..	..

TABLE II.—(CONTINUED.)

Station.	Approximate Height of Rain Gauge.		No.	Adopted Average Annual Rainfall.	Rainfall in 1893.			Rainfall in 1894.		
					Total Depth.	Difference from Average.	Ratio.	Total Depth.	Difference from Average.	Ratio.
	Ground.	Above Sea-level.								
Parkstone	Ft. In.	Feet.	44	In.	In.	In.	93	In.	In.	126
Poole (West Street) ..	0 11	108	46	31.00	28.79	- 2.21	82	30.02	+ 8.01	124
Portsmouth	1 2	0	47	29.75	24.45	- 5.30	82	30.88	+ 7.13	124
Portland, Chesell ..	1 3	200	47	32.79	25.33	- 7.46	77	40.76	+ 7.97	124
Portsmouth	1 4	10	52	31.17	29.33	- 1.84	75	30.06	..	..
Sheddenham	1 3	722	52	31.17	25.47	- 5.70	75	31.81	..	..
Sturminster Newton (Riverside) ..	0 8	130	56	30.39	29.20	- 1.19	83	30.71	+ 0.32	131
Sturminster Newton (The Bank) ..	1 0	200	58	30.00	25.28	- 4.72	81	40.91	+ 10.91	131
Swanage (The Bank) ..	1 0	8	59	29.74	24.71	- 5.03	83	40.79	+ 11.05	137
" (1, Gordon Villa) ..	2 0	60	59	29.74	24.71	- 5.03	83	37.03	..	..
Verwood Manor	3 0	65	..	..	23.46	..	..	38.81	..	..
Wareham (Castle Gardens) ..	1 6	150	63	31.50	24.43	- 7.07	80	38.81	+ 0.48	131
" Binegar Hall	2 6	18	63	33.12	25.18	- 7.94	79	38.04	+ 4.86	113
Weymouth, Nothe	1 0	65	64	33.12	29.02	- 4.10	79	37.45	+ 4.33	113
Winterbourne Steepleton Manor ..	1 0	79	69	28.58	22.73	- 5.85	80	30.25	+ 7.67	127
Winterbourne Whitechurch, Whitcombe ..	1 0	316	73	30.81	30.81	0	81	50.07	..	..
Wyke Regis (Bellfield House) ..	0 10	270	73	35.36	29.57	- 5.79	81	43.16	+ 7.80	122
Wyke Regis (Bellfield House) ..	0 0	80	74	30.89	24.48	- 6.41	79	39.61	+ 8.72	128
Rushmore	1 0	516	76	34.91	26.52	- 8.39	70	37.15	+ 2.24	100
Rushmore	3 0	500	106	30.80	32.49	+ 1.69	88	44.00	+ 8.10	122
Larmer	3 0	500	107	38.00	32.02	- 5.98	83	45.07	+ 6.47	117

TABLE III.—(CONTINUED.)

Station.	Height above Sea-level.	1893		1894		Averages.			
		Total Depth of Rain.	Days of Rain.	Total Depth of Rain.	Days of Rain.	Year.	Height above Sea-level.	Depth of Rain.	Days of Rain 10 in. or more.
		In.		In.			Ft.	In.	Number of Stations.
Bloxworth ..	203	27.05	113	41.48	165	1893	238.6	27.63	115.1
Beaminster ..	216	28.85	103	40.71	107	1891	238.0	42.25	100.0
Gillingham ..	214	27.00	104	39.15	200				
Portsmouth ..	260	25.33	141	40.76	201	Mean	238.6	34.94	167.7
Whitecombe ..	270	29.57	146	43.16	187				
Haselbury Bryan ..	305	37.42	157	64.71	190	1893	331.0	31.29	152.0
Steepleton ..	316	..	..	50.07	204	1894	325.8	48.63	198.2
Godminster ..	320	..	..	50.33	200				
Chalbury ..	338	24.04	138	38.29	188	Mean	323.4	30.00	175.1
Cattistock ..	250	32.40	101	49.73	209				
Cheddington ..	604	34.00	102	55.21	212	Mean	604	44.92	187.0

TABLE IV.—STATISTICS OF THE TEMPERATURE OF THE AIR, AND OF THE HUMIDITY AND AMOUNT OF CLOUD AT WINTERBOURNE STEEPLETON MANOR, FORWARDED BY MR. H. STILWELL.

1894.	Temperature of the Air							Humidity 9 a.m. Saturation = 100.	Cloud 9 a.m. Overcast = 10.
	In Stevenson Screen.					On Grass.			
	Averages.			Extremes.		Average Lowest.	Lowest.		
	Highest.	Lowest.	Daily.	Highest.	Lowest.				
January ..	43.3	33.0	38.4	52.0	13.0	28.3	7.2	88	6.5
February ..	47.12	35.9	41.6	52.8	20.2	30.5	13.0	90	6.3
March ..	52.6	34.6	43.3	62.8	27.0	22.5	19.8	83	5.0
April ..	56.6	40.1	48.0	64.0	29.7	33.5	21.8	75	4.6
May ..	59.5	40.2	48.2	65.7	32.0	35.4	25.5	66	3.6
June ..	63.3	49.4	55.9	78.6	40.6	44.0	33.0	57	2.7
July ..	65.1	52.1	58.1	78.8	40.7	46.9	37.2	42	1.4
August ..	65.3	52.0	58.3	74.0	42.1	46.1	34.1	34	1.1
September ..	61.6	46.6	53.7	72.8	34.0	39.2	25.7	27	0.1
October ..	56.2	44.0	49.9	66.3	27.3	38.2	19.5	27	0.2
November ..	51.6	41.4	46.5	59.8	22.4	35.6	25.4	91	7.2
December ..	47.2	36.7	42.1	53.1	21.3	30.7	16.8	91	6.6
Year ..	55.5	42.2	48.7	78.8	13.0	36.4	7.8	86	7.0



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OF THE

DORSET NATURAL HISTORY & ANTIQUARIAN FIELD CLUB,

Vols. I. — XVI.

By J. C. MANSEL-PLEYDELL, F.G.S., F.L.S.

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† Pronounced by the S. Kensington Museum Nat. Hist. Authorities to be a specimen of the S. American Cow Bird, doubtless escaped from a cage.

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By NELSON M. RICHARDSON, B.A., F.E.S.

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